ENGINEERING NEWS-RECORD

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A McGRAW-HILL PUBLICATION

NORTH POINT PLANT

Second of San Francisco's three new sewage treatment units goes into operation

The new North Point sewage disposal plant is the latest addition to San Francisco's three plant sewage treatment program. It began a thirty day test run on October first and provides primary treatment for a design flow of 60 million gallons of sewage per day.

The North Point plant covers eight acres. There are 10 digesters, each 100 ft. in diameter and 33 ft. high with steel floating covers. These are arranged in groups of five — each group consisting of three primary digesters and two secondary digesters. The remaining tank is a 56-ft. in. diam. by 20-ft gasholder.

The North Point plant was designed by the engineering office of Clyde C. Kennedy, Consulting Engineers of San Francisco.

Ten 100-ft. diam. digestion tanks equipped with P.F.T. Floating Covers and a 55-ft. 6-in. gasholder equipped with a P.F.T. spirally guided cover built by Chicago Bridge & Iron Company at San Francisco's North Point sludge treatment plant.

San Francisco's new $4,486,000 North Point sludge treatment plant is the biggest move in the Golden Gate city's $20,000,000 program to prevent dumping raw and dangerous sewage into bay waters. It substantially augments existing sewage treatment facilities by serving sixty per cent of the city—an area bordered roughly by Twin Peaks, the Presidio and Islais Creek.

Playing an important part in the operation of the North Point plant are ten 100-ft. digestion tanks equipped with P.F.T. Floating Covers, a 55-ft. 6-in. diam. gasholder with a P.F.T. spirally guided cover and a 15,000-gal. Horton elevated water tank. All 11 of these structures were fabricated and erected with our own experienced workmen.

Gas formed in the sludge digestion process is collected in the digestion tanks at a pressure of 5 inches of water. It is then metered and piped to the gasholder where moisture is precipitated and the supply to the compressor is equalized for distribution to the mains.

Floating covers, spirally guided covers and elevated tanks are only a few of the many types of plate work we do. We also build flat-bottom storage tanks, Hortonspheres, Hortonspheriods, refinery towers, pulp digesters and heavy pressure vessels.

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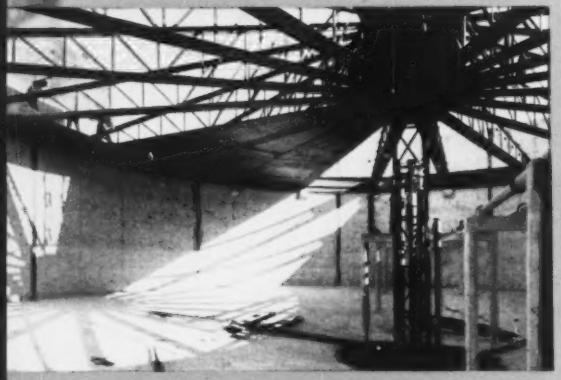

Interior view of 100-ft. digestion tank at San Francisco's North Point Sludge Treatment Plant construction of P.F.T. Floating Cover by a Chicago Bridge & Iron erection crew. Radial trusses are all in place. Steel plates are being welded into the fourth bay.

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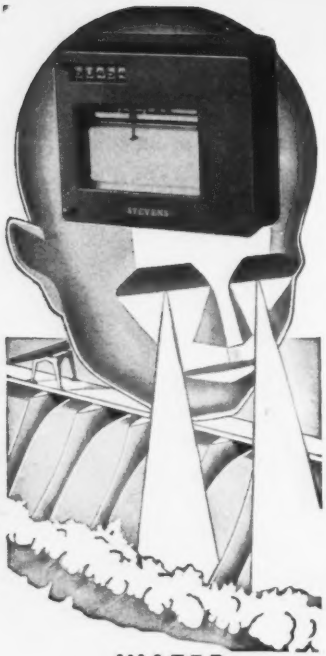

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Volume 148 FEBRUARY 7, 1952 No. 6

WALDO G. BOWMAN
Editor

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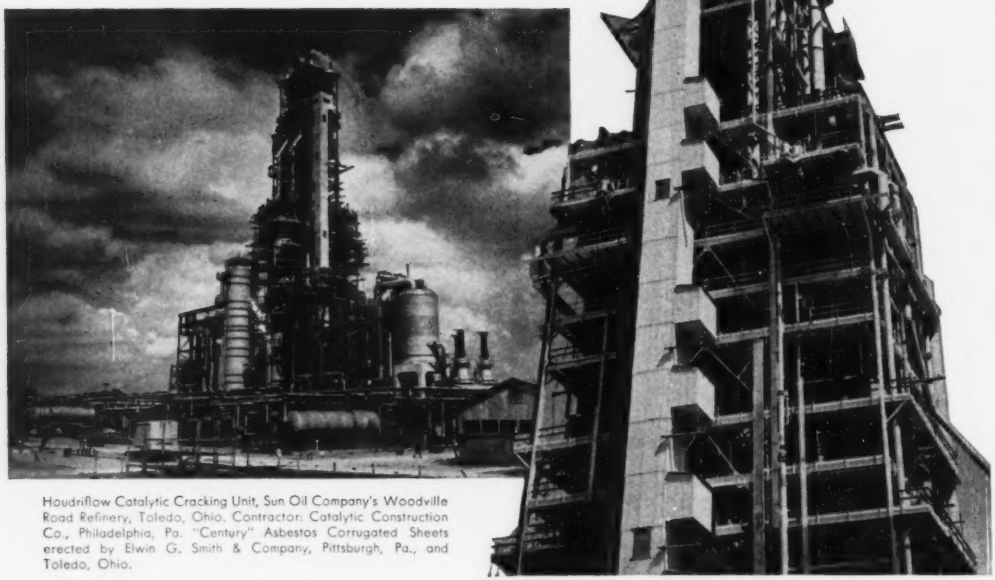

Houdriflow Catalytic Cracking Unit, Sun Oil Company's Woodville Road Refinery, Toledo, Ohio. Contractor: Catalytic Construction Co., Philadelphia, Pa. "Century" Asbestos Corrugated Sheets erected by Elwin G. Smith & Company, Pittsburgh, Pa., and Toledo, Ohio.

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Dave Kornoely's 2 D TOURNAPULLS self-load gravel

. . . move 60 yds. hourly on 3/4 mi. haul

At The Heights, Michigan, grading for the new 500-car Houghton Lake Drive-in Theater involved 8,000 cu. yards of gravel and gravelly loam. It was strictly a precision job . . . with each parking ramp placed at a different level from the next . . . each sloped for adequate drainage . . . and all connected by an intricate system of gravelled entrance and exit roads. With less than a month to do the work, Contractor Dave Kornoely of The Heights drove in his own D Tournapull . . . rented another . . . with the 2 machines, put production on a high-speed basis.

Meet strict specifications

At start of the job, Kornoely used the 2 "D's" to build 22 curved 10′ ramps and 22 connecting roadways 28′ wide. On these assignments, the Roadsters made over 200 separate cuts and fills, ranging from 0.1 to 4.6′ in depth, and 20 to 120′ in length. Next, they leveled two main 40′ entrance and exit roads . . . dug interceptor ditches . . . and, finally, covered the entire 700′ x 720′ area with a thin layer of gravel. Both dirt and gravel were self-loaded . . . but, while most of the dirt was on a short-haul basis, the gravel had to be borrowed ¾ mile from the theater area.

On the gravelling, Tournapulls hauled through fields and over winding, unmaintained roads. Travel speeds were held down all the way by shortness of straight-away runs and rough going . . . yet each Tournapull completed a 1½ mile round trip in 12 minutes. Total cycle time included ½ to 1 minute to self-load 6 pay yards of gravel, and ½ minute to spread. On the average, the 2 Roadsters brought in 10 loads (60 cu. yds.) hourly . . . allowed Contractor Kornoely to finish the job within the short schedule time.

In 600 hrs. . . . 4 hrs. downtime

Prior to this theater-building contract, Kornoely used his electric-control Tournapull on a number of small fill assignments around Houghton Lake. "In its first 600 hours of operation, we had less than 4 hours downtime," reports Kornoely. "The D Tournapull really is a production tool!"

And here's another advantage reported by Kornoely. He lost no time moving his D Tournapull from job-to-job. To get to The Heights, for example, Operator Loyal Bradbury drove the "D" 40 miles from Cadillac in less than 2 hours.

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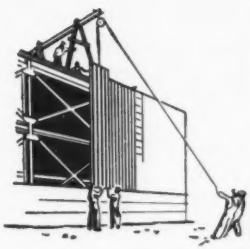

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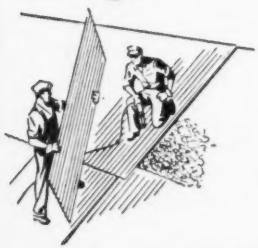

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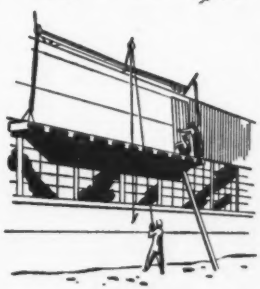

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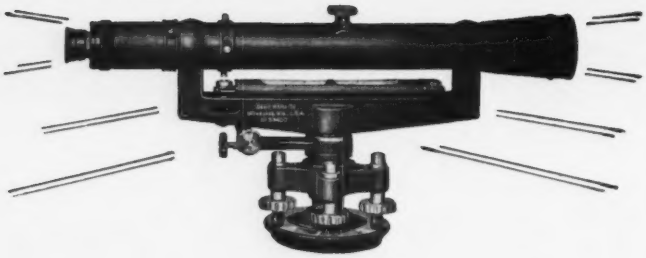

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Distance away you can read 1/100 ft. graduation	1200 ft.	1050 ft.	900 ft.
Diameter of objective lens	1.81 in.	1.485 in.	1.69 in.
Field of view (In minutes of arc)	64'	52'	60'
Coated optics	YES	YES	YES
Covered Leveling Screws	YES	YES	YES
Can you easily replace worn leveling screws in the field?	YES	NO	YES
Sensitivity of level vial (in seconds of arc per 2mm of graduation)	20"	20"	25"
Price — Complete with carrying case, tripod and accessories — F.O.B. factory	$280.00*	higher	higher

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READER COMMENT

Arthur E. Morgan defends Miami River flood control

Sir: Gerard H. Matthes' article, "How Good Is Flood Control?" (ENR Nov. 8, 1951, p. 30) repeats an obvious warning which needs constant repetition in view of the habits of popular writes on the subject when he says: "The truth is, river basins cannot be compared with each other, as the conditions in no two are alike, and each represents a separate problem."

In his discussion of Miami River (Ohio) flood control, however, some statements need correction.

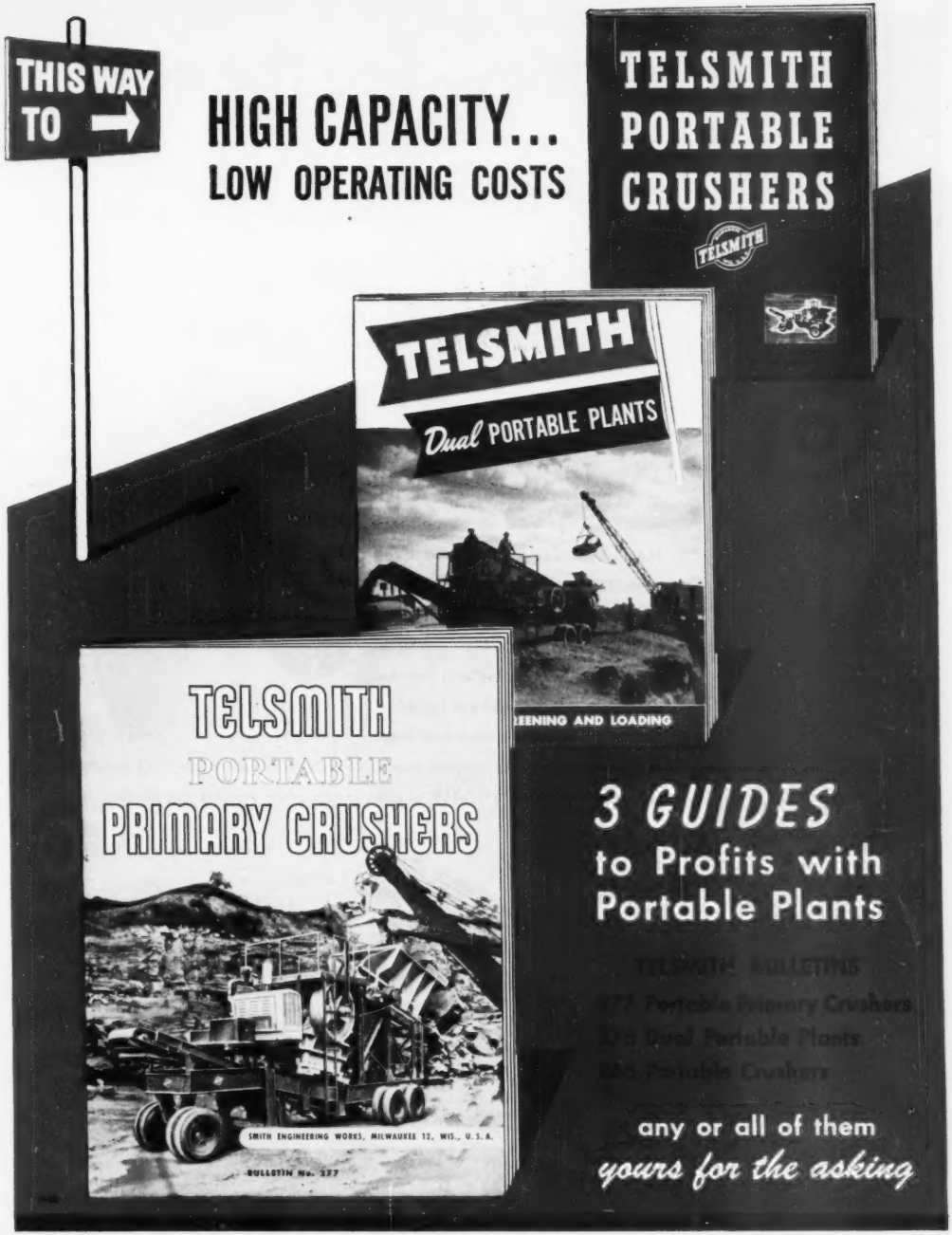
Mr. Matthes states; "Worthy of note is the fact that the land in the five retarding basins covers a total area of about 36,000 acres, or nearly half an acre of retarding basin land to protect one acre of conservancy–district land, which ratio is so disproportionate as to invite no duplication elsewhere."

The actual inferences are quite the contrary. Practically all floods occur in winter or early spring before spring crops are planted. The dams being without gates, the water passes away as soon after the flood as the channel below can carry it, and winter crops are not much damaged, though the land is fertilized by the thin layer of fertile silt that is deposited. These basin lands are cropped each year and, in the thirty years the system has operated, far less than 1% of the basin land crops have been lost. The improvement in fertility from deposited humus doubtless adds far more to crop values than is lost. The farm lands below are protected from destructive washing, while the lands of the basins are enriched and not injured as to crops.

Again, Mr. Matthes states: "Although the Miami Conservancy work has been successful, it does not provide a useful pattern for large area projects because of its distinct limitations, chief of which is the absence of gates on its retarding basins."

Space does not allow a discussion of this subject here. However, in view of Mr. Matthes' frequently expressed opinion as quoted, when the system had been in operation for a quarter of a century I asked every living engineer who had been in a position of responsibility for design or construction on that project–about ten altogether–his opinion of this design based on the operating experience. Without exception, every one of these men believed that the design of dams without gates was best for the Miami Valley project. Mr. Matthes,

(Continued on page 15)



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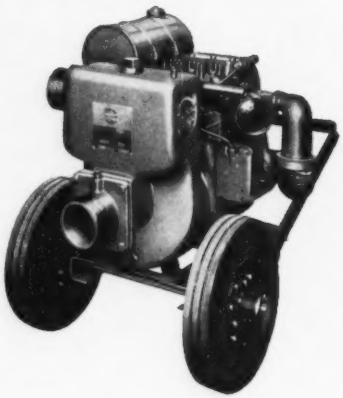

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(Continued from page 12)

who on the Conservancy project was the able editor of technical reports, was the only dissenting voice.

As related to Ohio River flood control, suggestions have been made by Mr. Matthes and others that the Miami River dams should be provided with gates to reduce floods on the Ohio River. This would endanger their usefulness for the purpose for which they were built. Mr. Matthes states, "The best storage sites are nearly always well up on the tributaries." While I have made no definite study of the site, it appears that for Ohio River flood control the best site of all on the Miami River is at its very mouth. The same is true on the Tennessee River, where the Kentucky Dam is located. So far as the Miami River is concerned, flood control for the Ohio should not be allowed to interfere with the existing system of dams for the protection of Miami River cities.

ARTHUR E. MORGAN
Yellow Springs, Ohio

EDITORS NOTE: Mr. Morgan, as most readers know, was the chief engineer of the Miami Conservancy District from its inception until after its flood control facilities were completed.

Niagara power

Sir: I wish to correct two erroneous impressions your readers may have received from reading your editorial "Let Utilities Develop Niagara Power" (ENR Dec 6 1951 p 21).

If Congress allows the Power Authority of the State of New York to construct the Niagara redevelopment, no public funds will be used. The power authority is going to finance this project and the St. Lawrence power development by issue of revenue bonds—not by use of tax money.

Also, Earle J. Machold, president, Niagara Mohawk Power Corp., does not share your fear that "integrating the present private plants with new public facilities would be difficult and inefficient." In a letter to Senator Tom Connally on May 23, 1950 Mr. Machold stated: "Having confidence in the fairness of any governmental agency or agencies that may be concerned with the construction or operation of additional hydroelectric production facilities for utilizing the additional waters of the Niagara River, we feel certain that some fair method of cooperation and mutually satisfactory policy can be arrived at, in the event our company is not authorized to undertake the additional development."

IVAN SATTEM
Chief Engineer, Power Authority of the State of New York

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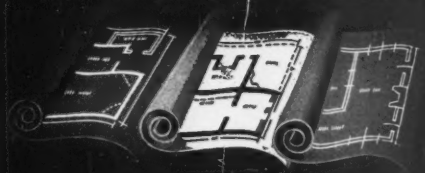

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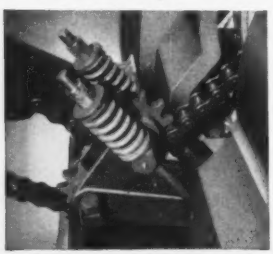

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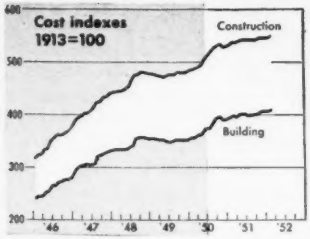
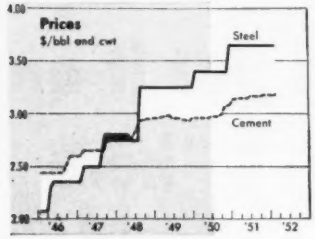
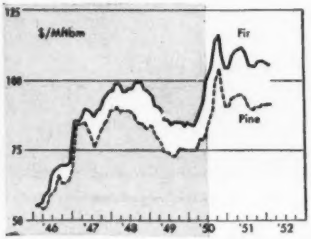
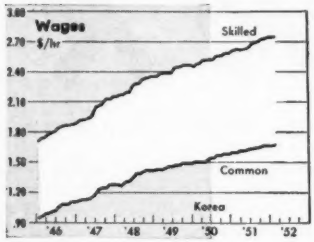






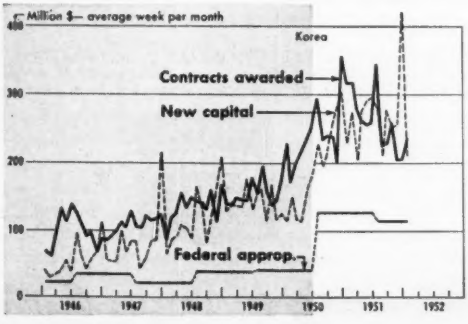


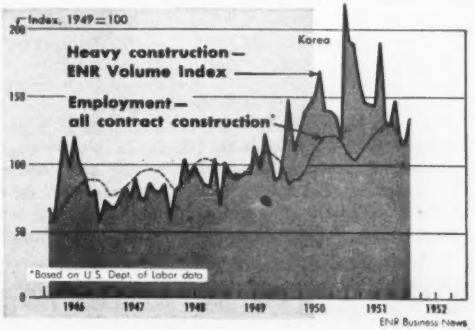
ENR INDEXES (1913 = 100) ●	1952 February	% Change from last Month	% Change from last Year
Construction Cost	549.26	+0.2	+ 2.1
Building Cost	406.05	+0.1	+ 1.9
MATERIAL PRICES ●			
Cement, bulk, per bbl	$3.177	+0.1	+ 1.0
Structural Steel, (3-mill aver.), per cwt	3.650	0.0	0.0
Sand, per ton	2.103	+0.09	+ 0.8
Lumber, 2x4 Fir, per M. ft. bm	106.514	+0.8	− 2.9
Lumber, 2x4 Pine, per M. ft. bm.	91.733	+0.07	− 1.4
Common brick, per M	31.121	+0.02	+ 1.2
Ready-mixed concrete, per c. y	11.009	+0.1	+ 0.2
Structural Clay Tile, 3x12x12 per M	149.850	0.0	+ 7.8
WAGE RATES ●			
Common	$1.659	+0.3	+ 4.1
Skilled (aver. 3 trades)	2.758	0.0	+ 5.4
Bricklayers	3.069	0.0	+ 6.0
Structural Ironworkers	2.697	0.0	+ 5.3
Carpenters	2.507	0.0	+ 4.8

CONTRACTS AWARDED (Millions)	1952 Jan. (5-Weeks)	12-Mo. '51	% Chg. from Jan '51 (4-Weeks)	% Chg. from 12-Mo. '50
Total U. S. (ENR reported)	$1,196	$13,605	−24.4*	+ 10.1
Private	723	7,438	−15.3*	+ 11.5
Public	473	6,167	−35.1*	+ 8.5
Federal	155	2,246	−56.3*	+ 18.4
ENR Volume Index, '13 = 100	470	522	−29.3	+ 3.7
NEW CAPITAL (Millions)				
Total	$482	$16,572	−87.2*	+ 83.5
State & Municipal Bond Sales	243	3,602	+41.2*	+ 15.4
Corporate Security Sales	222	3,012	− 8.6*	+ 17.7
Federal (non-federal work)	16	547	−82.1*	+ 11.7
Federal (federal work)	.....	9,411	.....	+232.6

MATERIAL SHIPMENTS & LABOR SUPPLY (Millions)	1951 Nov. (N) Dec. (O)	11-Mo. (11) 12-Mo. (12)	% Chg. from '50 Mo.	% Chg. from '50 Yr.-Cum.
Cement, bbls, Bu. of Mines	18.001(N)	229.518(11)	− 9.1	+ 6.5
Fabr. Struc. Steel, tons, AISC	0.203(D)	2.702(12)	− 4.7	+ 18.7
Lumber, mil. ft. bm., NLMA	3.163(N)	35.114(11)	− 3.8	− 4.7
Lumber Prod., mil. ft. bm., NLMA	3.210(N)	36.633(11)	− 4.4	− 0.7
Contract Constr. Employ., BLS	2.502(D)	2.566†(12)	+ 4.1	+ 10.6

● (20-cities' average) † Average * Computed on Weekly Average





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EDITORIALS

Bluffing on the St. Lawrence

READING in President Truman's message to Congress what he says about his meeting with Canadian Prime Minister St. Laurent last September leaves the impression that he was just taking one more step in a measured plan to bluff Congress into action. The first step was the legislation, adopted by the Canadian Parliament after Prime Minister St. Laurent got back to Ottawa, which set up a government agency to build a ship canal on the Canadian side parallel to the international section of the river.

Solemnly President Truman now tells Congress that "the Canadian government has officially proposed, if the Congress does not approve the 1941 agreement at an early date, to construct the seaway as an all-Canadian undertaking, simultaneously with the construction of the power phase of the project by the Province of Ontario in association with an appropriate agency in the United States." He also tells Congress that "if Canada builds the seaway, it will set the tolls * * * and could keep on charging tolls even after the seaway is paid for."

It all sounds very urgent. Unless Congress approves the 1941 agreement quickly, shippers on this side of the border may have to pay tolls indefinitely!

But what the President did not tell Congress puts a more sober aspect on the "emergency." He did not tell Congress that, under the 1909 treaty, Canada cannot build even an "all-Canadian" ship canal without approval of the International Joint Commission; nor without some agency on this side of the border being authorized to build those parts of the dams required for the project that will extend across the border into New York State. Since he objects to having the Power Authority of New York build the dams, only the Army Engineers or the Bureau of Reclamation is available, and Congress still holds their purse strings.

Finally, on the matter of tolls, what the President did not tell Congress is that if Canada really thinks that it can make money by putting tolls on ships moving up and down the St. Lawrence it still could put tolls on the Welland Canal and on the Soulanges and Lachine Canals even after we had built the canal along the international section under the 1941 agreement and had specified what tolls, if any, are to be charged for its use. Hence the toll question is not as urgent as President Truman would have Congress believe.

Some time ago this journal expressed the view that the power dams in the international section of the St. Lawrence River should be built, and that when they are built, provision for locks for a modern ship canal should be included. We still hold that view. The power is needed. There is less urgent need for the ship canal, yet its construction, ultimately, should not be seriously hampered or made more costly by failure to plan for it when power dams are built.

The great weakness in the President's argument for a ship canal in the international section of the St. Lawrence is that such a canal will not of itself open the Great Lakes to large ships. Such ships cannot go up the river until Canada builds modern ship canals around the Soulanges and Lachine Rapids, which are wholly within Canada. No iron ore from Labrador can move up into the Lakes until that work is completed.

The 1941 agreement has a similar weakness. If approved by Congress at this late date, Congress would have no assurance as to when the Lachine and Soulanges canals would be built because, under that agreement, Canada is committed to complete those canals by the end of 1948! And the agreement's estimates of cost, made in 1940, are equally unrealistic.

That Congress can be bluffed into approving that document now seem highly improbable. President Truman and Prime Minister St. Laurent would do better to put their staffs to work on a new agreement, drawn up in the light of today's conditions. Congress might be more receptive to a plan that authorizes an immediate start on construction of the power facilities and puts off completion of the seaway to some future date.

Suspension bridge safety

THE WIND induced vibration of the Golden Gate Bridge recorded during the Dec. 1 storm (see p 27) is the most significant suspension bridge motion noted since the Tacoma Narrows Bridge failure in 1940. It raises serious question about the integrity of this bridge—the most famous of all-suspension bridges—as well as other similar structures.

Absence of significant motion on the Golden Gate span had lulled engineers into a sense of complacency. As one example, the Bureau of Public Roads ended its participation in the studies with vibration recording instruments on the Golden Gate Bridge after four years of almost no motion record. It was foresighted enough, however, to leave the five instruments it owned (out of ten total) on the bridge, provided the local authority continued to maintain them.

The record made during the Dec. 1 storm more than justifies investment in the instruments, although it is unfortunate that the record was not sufficiently refined to disclose whether or not a destructive type torsional vibration was induced. In any event a 130-in. vertical motion is serious. And while strong winds of 3 hours' duration, are exceptional there seems to be no reason why greater winds cannot occur that might develop the more damaging torsional motion.

The bridge board of directors has ordered studies made of possible strengthening and vibration reducing schemes. It is to be hoped that such studies will be fruitful; and if remedies are indicated that the necessary changes in the structure are quickly made.

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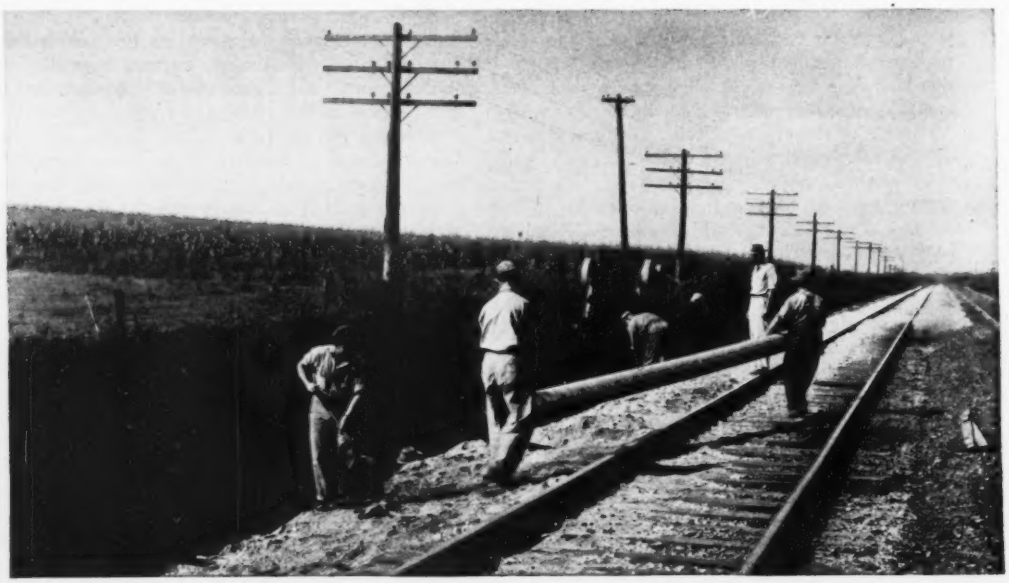


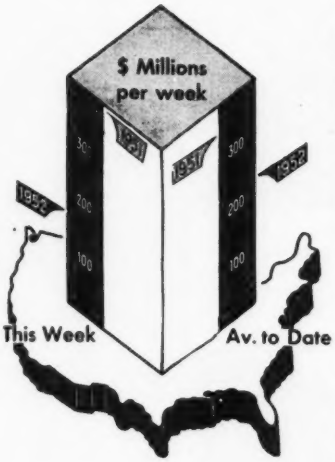
THE CONSTRUCTION WEEK

STRUCTURALS DELAY—Second quarter 1952 structural steel allotments won't be announced for a while. NPA has found that the amount of steel tentatively set aside for civilian uses wouldn't be enough to continue projects that have already been granted steel in previous quarters. And NPA has promised that any project under way which had gotten steel before, would continue to get it. NPA is now asking the military to squeeze some more water out of its requests.

SEA STORY—The ocean-battered hulk of the $2-million dredge Sandmate was recovered last week from the bottom of Kill Van Kull between Staten Island and the New Jersey coast. She sank in 40 ft of water last May when swept against rocks by a cross tide. After a difficult three-month salvage operation, the dredge now is in drydock for repair. After being reconditioned, she is scheduled by the owner, Construction Aggregates, to resume sand pumping operations in extension of the Newark, N. J., airport.

NEVER SAY DIE—Secretary of Interior Oscar L. Chapman has decided to take his feud with the Virginia Electric & Power Co. over construction of a hydroelectric project at Roanoke Rapids, N. C. to the Supreme Court. Both the Federal Power Commission and the Fourth Circuit Court has sided with VEPCO. Preliminary construction work is under way.

PROBE SOUGHT—For several months now probe-conscious congressmen have been pressuring for an investigation of the Federal Housing Authority. Last week new complaints were lodged by Rep. Paul Shafer alleging irregularities in the Grand Rapids, Mich. district, in connection with construction, sale and financing of prefabricated homes. Since the pressure began, FHA has been doing some house cleaning of its own—firing two officials, warning others. In this case, FHA assured Shafer last July that it was actively investigating the situation. Since then Shafer says he has heard nothing more. How much longer FHA can stand off formal inquiry grows daily less certain, now that "scandal" has become the political battlecry.



Contracts by type of work

	This Week	Cumulative 6 wks. 1952	1951	% chge
Waterworks	$11.1	$37.6	$19.4	+94
Sewerage	4.1	210.0	42.7	−51
Bridges	4.0	22.4	39.0	−43
Highways	19.1	126.4	102.2	+24
Earthwork, Waterways	0.9	47.8	23.4	+104
Buildings:				
Public	25.8	163.3	372.2	−56
Housg., pub.	5.7	79.6	111.1	−28
Housg., priv.	38.6	301.0	258.0	+17
Commercial	4.7	36.9	100.6	−63
Industrial	39.5	376.9	892.9	−58
Unclassified	13.6	151.0	96.2	+57
Total	**$167.1**	**$1,363.9**	**$2,057.7**	**−34**

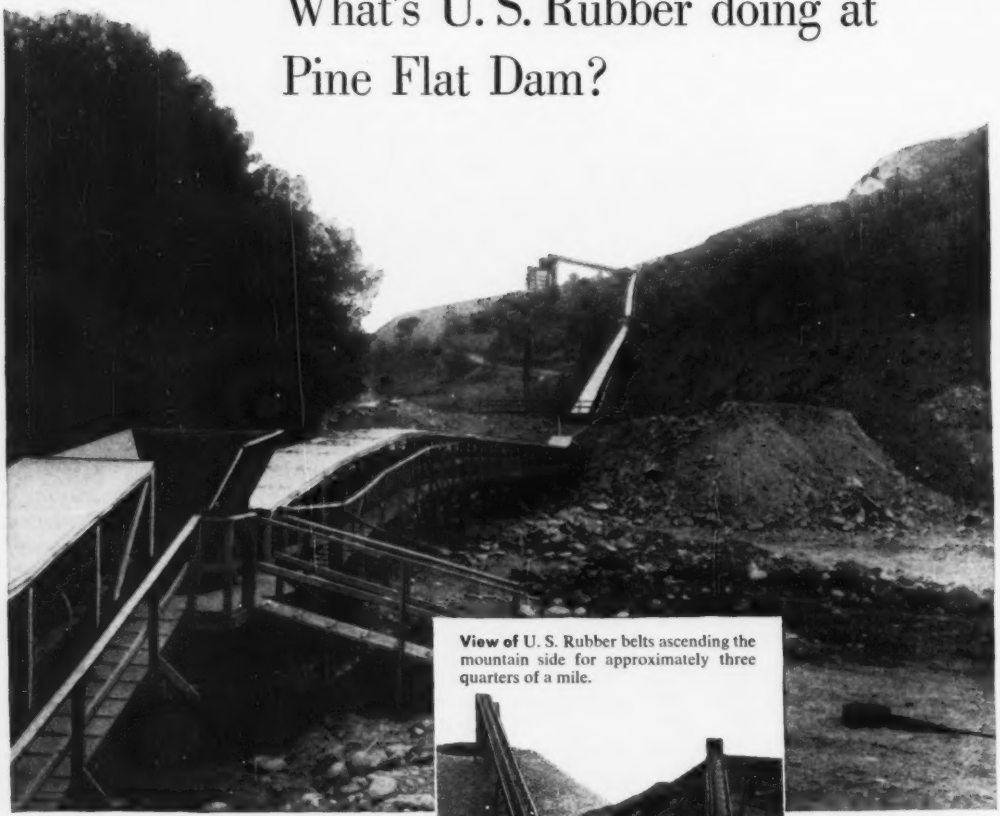
NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR COST INDEX

Index Base = 100		1913	1926	1949
Constr. Cost.	Feb. '52	549.26	264.03	115.14
Bldg. Cost	Feb. '52	406.05	219.50	115.42
Volume	Jan. '52	470	191	136

IN THIS ISSUE—New housing regulations may permit more than 800,000 starts this year (p. 23). . . . J. D. Hedin Construction Co. plans all out fight on Wage Stabilization Board agency decision (p. 24) . . . . Plans for expanding atomic energy construction program are outlined (p. 25) . . . . Investigators take Arkansas' Highway Department through the wringer (p. 26) . . . . Studies are being made to strengthen the Golden Gate Bridge (p. 27) . . . . For the first time in the East, a box girder on stilts design is used for a viaduct (p. 28) . . . . Seepage losses from a Nebraska water-supply canal are reduced by silt injection (p. 32) . . . . At Fort Randall Dam, a portable dredge pays off (p. 38) . . . . An optical plummet saves $37,000 at Hungry Horse (p. 41) . . . . Pittsburgh is up to its ears in its biggest road building program (p. 44) . . . . Roadbuilders lay new plans at convention (p. 55) . . . . AFL leaders ask for agency to screen military requirements (p. 69) . . . . Construction costs show three-month increase (p. 71) . . . . Potent newcomer steps up road machinery production (p. 72) . . . . Sound waves may kill bacteria (p. 112).

What's U. S. Rubber doing at Pine Flat Dam?



View of U. S. Rubber belts ascending the mountain side for approximately three quarters of a mile.

Stockpiling coarse and fine material taken from the gravel pit.

At this great California installation, the finished aggregates and sand are carried by "U.S." conveyor belts from storage all the way to the batching plant high up on the site. The belting is 36" wide, climbs six flights for a total distance of 3700 feet. This 100% "U.S." belt installation is another example of 3-Way Engineering —"U.S." engineers worked with the conveyor equipment manufacturer and the contractor to produce this economical and efficient haulage system.

United States Rubber Company engineers have designed and built conveyor belts for a variety of installations, large and small. Let them advise you on any materials handling problems. Write to address below.

Here conveyors are stockpiling the finished washed-and-screened gravel.

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New housing regulations drafted

New housing rules submitted to the Construction Industry Advisory Committee by the National Production Authority imply no hardships for the vast bulk of home builders.

The proposed order—drafted by the Housing and Home Finance Agency—practically assures the spreading of controlled materials to cover 800,000 new housing starts this year. With a fair flow of mortgage money, builders are more likely to start 900,000 to one million new units.

A 40% cut in second quarter materials allotments for housing posed a problem for the government agencies. The cut made it look as if there would be only enough materials for a 660,000 rate of starts —40% under last year's 1.1 million. Only a change in the rules for self-certification of new housing jobs could stretch second quarter materials allotments—and similar quantities expected for the third and fourth quarters—to reach the government's target of 800,000 starts.

To meet the changed conditions, HHFA drafted an order that would spread the available copper and steel over that many new houses. As noted in ENR, Jan. 31, P. 25, the order is a supplement to the proposed revision of CMP Regulation 6 that CIAC members began studying last week.

The committee will dissect both documents at its Washington meeting Feb. 11. You can look for the new rules to be issued—in final, effective form—no later than Feb. 18.

Proposed materials ceilings in the new housing order leave ample room for home builders to self-certify single-family to four-family structures as they have been doing under present rules. One feature has been added—largely as a result of suggstions by the builders themselves. In addition to maximum amounts of copper and steel per dwelling unit, the order proposes parallel limitations on poundage per square foot of calculated area—roughly corresponding to usable floor area above the basement.

Maximum quantities proposed are adequate for self-authorization of more than 96% of the houses built in the United States. On copper they are a little tighter than present limits; but the new steel allowances would create no squeeze at all.

TO ADMINISTER the new order, HHFA picked Benjamin I. Shulman.

Copper water pipes are permitted as now; a house using such a water system would be eligible for self-authorization up to 130 lb of copper per dwelling unit, 30 lb less than the current allowance. For a house using steel pipes for water, the new maximum would be 30 lb per dwelling, just 5 lb under the present limit.

• **Specify copper usage**—Lighter copper water tubing would be required under the new order—Type L underground and Type M inside the structure. But builders could use what they have in their own stocks of Type K for service connections and Type L for inside water lines. If they use such stocks, the proposed maximum allows 125 lb of copper tubing plus 30 lb of other copper per dwelling—a total of 155 lb.

As now, no structural steel or aluminum could be used. The carbon steel allowance would remain unchanged at 1,450 lb for a house using copper water pipes, but it would be cut 100 lb to a new 1,700-lb maximum per dwelling unit for a house with a steel pipe water distribution system.

An added allowance is made for sheet metal heating ducts. Under a recent NPA change, sheet metal ducts become A-products—that is, controlled materials—April 1. Accordingly, the new order would make an additional allowance up to 350 lb of carbon steel per dwelling unit specifically for these ducts, where used.

• **Based on area**—Within the maximums, allowed poundage is tied also to square feet of calculated area. The limits per square foot are adequate for house construction. Here they are, on a pounds per square foot basis:

For copper: In a house using copper water tubing, 8.125 psf; and in a house with steel water pipes, 0.024 psf.

In a house using steel pipe water system, 1.40 psf; in one that uses copper water tubing, 1.20 psf. Where sheet metal heating ducts are used, there is a special added allowance of 0.30 psf for these ducts.

Other limitations on self-authorized houses were being strongly debated at the weekend. A limit of 1½ bathrooms per dwelling unit apparently was destined to be included in the proposed order as a good political—or psychological—measure, even if it would not save much material.

Definitely out, however, was a projected limitation of floor area. HHFA seriously considered a reasonable limit of 1,500 sq ft on floor area but decided against it. The area limitation would have affected less than 4% of U. S. houses and would have removed the incentive for the few builders of larger homes to use their ingenuity in stretching materials within the allowable maximums.

• **Under HHFA**—As stated in the earlier draft of new CMP Regulation 6, HHFA will administer and interpret the new housing order. Compliance and enforcement of the order will be te only functions retained by NPA.

To administer the new order, HHFA has an experienced man, Benjamin I. Shulman, already in office as director of its defense liaison staff. In that position, Shulman has been the claimant and distributor of allotted materials for residential construction.

His new duties will increase his area of responsibility. He will be directly in charge of administration of the housing order. In addition, Shulman will continue to handle all appeals on multi-unit rental housing, as he does now.

Builders of apartment projects will file CMP-4C applications with HHFA for construction authorization and materials allotments as they have been doing.

Hedin to fight WSB decision

An all-out fight against the Wage Stabilization Board's findings of wage-control violations will be made by J. D. Hedin, president of J. D Hedin Construction Co., Washington, D C.

Hedin discussed his situation, the problems that confronted him in constructing the $7,152,000 hospital at Ann Arbor, Mich., for the Veterans Administration, and his plans for contesting the findings, in an exclusive interview for ENGINEERING NEWS-RECORD.

The first step is an appeal to WSB's National Enforcement Commission of the Detroit regional commission's findings announced on Jan 23. (ENR, Jan. 31) Hedin's counsel, Stewart R Carter, Jr., of the firm of Felker & Carter, Washington attorneys, said the findings would be challenged on two counts:

(1) That Hedin did not violate the law, (2) that, if he did, the penalty assessed is excessive and unreasonable under the circumstances.

(The findings were these, that from Feb. 28 to Nov. 14 last year Hedin paid some 40 bricklayers total illegal wages of $116,131.50 at a rate of $3 an hour when the labor agreement of the Washtenaw County General Contractors Assn. called for a rate of only $2.75; and further that, as a penalty, the VA should deduct $40,000 from what it must pay Hedin under its contract and the Bureau of Internal Revenue should disallow another $40,000 as an expense in computing Hedin's 1951 income tax. The latter will cost Hedin about $30,000, making the total penalty imposed about $70,000.)

• **Court next**—The second step, if the appeal is lost, will be to seek a court injunction to prevent the VA and the Revenue Bureau from imposing the penalties. That will place the issue in the courts, where Hedin hopes to raise a constitutional question on the basis of equity.

Reference will be made, among other things, to the confusion surrounding the imposition of controls shortly before the alleged violation began, the inability to get any interpretation of the rules, informal advice from WSB official that Hedin could raise wages 10%, the payment of $3 or more by contractors on other projects surrounding the Hedin job, and conflict between VA demands that the job be expedited and the inability to obtain bricklayers for $2.75 an hour.

Hedin's attorney also contemplates seeking perjury action against two of government witnesses he says lied at the Detroit hearing and bringing the area labor contract to the attention of anti-trust officials. A provision in the agreement that the unions will supply labor to members of the contractors' association before filling the needs of non-members is in restraint of trade, in Carter's opinion.

LOCAL POLITICS forced decision, says President J. D. Hedin.

Hedin attributes his predicament to "local politics"—resentment of local contractors, who initiated the government's charges, against a Washington operator moving in on such a big job.

Similar charges are also pending against another Washington contractor, Anchor Fireproofing Co., for allegedly paying bricklayers 12½-cents above the $2.75 area scale. Hedin was unable to get a delay in the hearings, which he feels was due to pressure of local contractors on the WSB commission.

• **Reason cited**—Local contractors said they brought action against Hedin because his $3 rate was pirating their bricklayers, thus unstabilizing the area.

Hedin's reply is that rates of $3, $3.25 and $3.50 were being paid on other projects immediately surrounding his job, with others paying travel time and other side payments and one, though sticking to the $2.75 rate, giving nine hours' pay for eight hours work.

Other points which were made by Hedin:

• He had to bring many bricklayers from Detroit and they would not work for less than the $3 Detroit rate.

• The job was nine months behind schedule because of unexpected soil conditions, costing him a penalty of $250 a day.

• WSB prohibited evidence from union officials that many contractors were paying $3 to bricklayers in Ann Arbor.

• A movement was in progress to raise the rate to $3, and this has since been done.

Hedin did not employ bricklayers at the time wages were frozen, so he did not have a "frozen rate" in Ann Arbor. He was paying the $3 rate to bricklayers on a $6-million VA hospital in Minneapolis, another VA hospital in Alexandria, La., and on an $800,000 junior high school in Washington, D. C.

• **Previous record**—In his 37 years in the construction business, Hedin said he has never been in trouble before over wage regulations. He has done more than $100 million worth of work for the federal government. Before organizing his own firm in Washington in 1938, Hedin was with N. P. Severn Co. of Chicago and J. L. Robinson Co. of Baltimore.

The National Enforcement Commission will probably give Hedin an oral hearing. It will have authority, if it wishes, to modify the amount and type of penalty as well as go into the actual fact as to whether the contractor is really guilty of violating the law. It is not limited by ordinary court rules for appeal.

Considerable interest will be shown in the regional commission's finding that the VA should deduct $40,000 from the price of the project. This is the first time, including the wartime period, that this type of penalty has been imposed.

The Defense Production Act permits, as did the Stabilization Act of 1942, this type of deduction, but the government never resorted to it before. In the past, penalty has been limited only to disallowance of a specified sum as a cost for income tax purposes. While the total illegal wages paid may be disallowed, usually only a part of it is assessed.

For wilful violations, there are criminal penalties, too—$10,000 fine and one year in prison. These must be prosecuted by the Department of Justice, however.

The National Enforcement Commission which will hear the Hedin appeal consists of Miss Helen Humphrey, chairman; Charles O. Gregory and Ralph Fuchs. Miss Humphrey was an attorney in the National Labor Relations Board. Gregory and Fuchs are college professors.

AEC expansion set to start

The Atomic Energy Commission expects to start work on its added $5-$6-billion expansion program as soon as Congress votes contract authority and initial funds. Chairman Gordon Dean made that fact amply clear last week.

AEC is completing the first budget request for the new program. After approval by the Budget Bureau, the request will go to the House Appropriations Committee. Congress is expected to approve all essential features of the program.

Sites for the first of the new plants will be selected by March, Dean indicated. The commission has not yet decided whether to put the plants on existing sites or at new locations. Decisions as to the location of additional plants will be made as the program develops.

The new program will more than double AEC's plant investment. Because of the size of the planned expansion, the commission wants to keep site selection flexible and not freeze locations until the plants are ready to go.

GORDON DEAN of AEC which announced expansion plans.

• **Survey made**—Area surveys have been under way in all parts of the country for the last seven months in connection with intensive study of the whole new program. AEC already had the benefit of the previous nation-wide surveys that preceded selection of the Savannah River site.

As a guide to contractors and public officials, AEC General Manager Marion W. Boyer last week listed nine criteria for evaluating possible areas: (1) operating requirements of the facility, which cannot be publicly disclosed; (2) vulnerability to attack; (3) public health and safety; (4) availability and cost of land; (5) nearness to centers where workers can live; (6) quality and quantity of water; (7) soil and topography; (8) power supply, and (9) transportation—rail, highway and air.

New facilities may require substantial acreage, Boyer said. That might mean something on the order of the 200,000-acre Savannah River site in South Carolina.

Areas being studied are large and may contain as many as five or six potential sites, Boyer pointed out. Detailed engineering surveys will be made in the most promising areas to select the best site on the basis of the listed criteria.

• **No adjustment**—President Truman had previously stated that the new program would not require any adjustment in the fiscal 1953 budget request of $950 million for atomic energy construction, as compared with nearly $1.1 billion in the year ending June 30. His statement does not preclude supplemental appropriations for 1953 or transfer of funds within the total federal budget for that year.

AEC Chairman Dean pointed out that the expansion program will not be spread evenly through several years but will build up to peaks. First effects of the program will be felt in fiscal '53.

As an example of construction peaks, the Savannah River project is now employing 25,000 construction workers. By September, AEC expects construction employment there to reach a peak of 45,500 workers.

With design of the Savannah River project still far from completion, the commission now thinks the cost will exceed $1.25 billion. That is more than twice the original "guesstimate." In making its first guess, AEC had nothing better to go on than the cost of a comparable facility like the one at Hanford, Wash., Dean explained.

Dean made clear that the AEC program will be concerned with production of fissionable materials. It won't go beyond the stocking of bombs and warheads. Any related production of "fantastic weapons" to utilize these stocks will be outside the programs of AEC.

Highway developments show active planning

The Oklahoma Turnpike Authority may take a few short cuts to hold down the cost of its Tulsa-Oklahoma City toll highway. Now needing an additional $7 million above the $31 million initial financing, the authority is studying elimination of a "dog-leg" curve through Sapulpa.

The restudy is being made at the request of the financial syndicate that bought the initial bonds, which pointed out that the authority went against advice of its engineers in curving the turnpike through Sapulpa. It recommended the authority should save some $600,000 by skirting the northern edge of the city.

A year-end report by Chairman Henry W. Jordan of the North Carolina Highway Commission said that more than 4,000 miles of county roads were hard-surfaced in the state during 1951 with funds from $200 million secondary road bond funds. He said 82% of the 12,000 mile goal set for the program has been completed. The commission last week approved a proposed $8-million expressway to be built through the heart of Winston-Salem.

• **Other highway activities**—The Florida State Road Department adopted a road construction budget of $187 million for 1952. However, it is not expected that the state will spend more than the anticipated income of $123 million. The Jacksonville Expressway, a $50 million project, has been allotted $10 million.

Regional-federal plan voted for Missouri Basin

Under a battle banner inscribed "No Missouri Valley Authority" the Missouri River States Committee voted to draft a "compact" to control and develop the valley. The "compact" is a regional-federal plan of management.

Many plans had been offered to solve the Missouri River problems (ENR Dec. 20, p. 104), but this new solution passed overwhelmingly with only Montana dissenting. It proposes:

1.) Policy and control will be in the hands of a Missouri Basin Commission composed of both regional and federal commissioners. 2.) Actual construction and operation will be done by the various federal agencies already working in the valley.

Essentially, it differs from an "Authority" in that control is vested in a co-operative body of federal and regional commissioners instead of an all-federal TVA-type group. Construction is done by existing agencies rather than a new single agency.

Four more steps must be taken before the "compact" is official. A three man team will draft the "compact"—they will present it to the committee in July—if agreed upon, it will then be presented to the legislatures of the 10 states—if ratified by them, it will be sent to Congress for final approval.

CONDUCTING THE PROBE of the Arkansas State Highway Department's operations is the Highway Audit Commission consisting of: Seated (left to right)—J. H. Crain, vice chairman of the Arkansas Highway Commission; V. L. Tindall. Standing—W. Spencer Fox; J. Herbert Thomas; E. C. Boye (not a member of the commission), operating manager of accounting firm hired by the commission to conduct the audit; R. H. Dickenhorst, chairman of the Commission. (Gene Prescott photo.)

Highway department grilled

The scandal-ridden Arkansas State Highway Department got rough handling last week in the second phase of an investigation by the state's Highway Audit Commission in Little Rock.

Hearings complete with evidence of destroyed records, and phantom construction equipment, turned up testimony to show the highway department's money affairs were closely linked to political campaign funds.

The HAC is probing highway department activities from July 1, 1947, to July 1, 1951, under orders from the last legislative session (ENR Jan. 31, p. 21). Auditors have found their work hampered by the absence of any records of the department's operations for the 1948-49 fiscal year.

What records they did find for the other years were not too helpful. The only assets on the highway department's books are unspent appropriations. The books do not show the department owns any land, buildings or equipment.

• Large purchases—A. E. Johnson, chief engineer for the highway department, told the commission last week the department had made heavy stockpiling purchases in 1950 over his written protest to former Highway Director J. C. Baker.

During fiscal 1950-51, the state purchased $525,000 worth of gravel and crushed rock for its stockpiles. At the end of the year, there was an estimated $362,000 of the materials still on hand.

Details of the stockpiling transactions were sketched in by the commission's chief auditor, Peter G. Wilson. He showed that of the total purchased for stockpiling, Interstate Construction Co. got $175,000 worth of business, and Arkansas Stone and Gravel Co. received approximately $245,000.

Among the large purchases of gravel and crushed rock he cited was 52,296 tons purchased from Interstate for stockpiling near Booneville at $2.20 a ton.

Only 3,295 tons were used and engineering estimates figured the residue would last the state more than seven years at normal use.

He said "exorbitant profits were made by the two principal vendors in the stockpile transaction." He considered it significant that of the material bids sought, that in not more than "a half dozen locations out of the 60 or 70" was more than one bid received.

• Shows profits—He said one of the vendors had sales of $775,000 in the year ending April 1951 and that it did 90% of its business with the state. The other did $645,000 worth of business in that year— and made a $125,000 gross profit from which it paid, among other things, a $7,000 campaign contribution.

Gordon McNulty, president of Interstate, and Fell Vaughan, owner of Arkansas Stone and Gravel, elaborated on this picture. McNulty said he had contributed $9,500 to McMath's campaign fund in 1950, and Vaughan said he had kicked in $14,000 in 1948 and 1950.

Each said he had made no-interest loans to Highway Department administrative or supervisory personnel. Each said Highway Department employes on construction jobs were put on the contractors payroll or were given "gifts" to insure their "cooperation." Each got advance information on quantities and locations of materials wanted by the department before bids were sought.

Campaign contributions also came into the picture in testimony alleging that $2,961 raised by Monroe County citizens for road materials wound up in Gov. Sidney McMath's campaign fund. Attorney General Ike Murry promptly filed suit to recover the money.

One former department employe, M. C. Methvin, testified he had collected $2,580 rental from Southeast Construction Co. for draglines he had never seen and didn't even know who owned.

He also told the commission that within two months after leaving his $5,500-a-year job with the highway department, he contributed $4,000 to Gov. McMath's campaign fund. He now receives a commission on all sales to the state by the Berry Co. He said he made the contribution in anticipation of business that his firm would get.

Less informative was State Purchasing Agent John K. Brown who told the commission he had destroyed a private list of vendors to the state tendering him Christmas presents. He did state he had borrowed $2,000 from a contractor without interest to open a store, and that a cash gift from a materials dealer went into Gov. McMath's campaign fund.

• Resigns post—Mr. Brown resigned his post last Friday after his third appearance before the commission. He was Highway Department Purchasing Agent from March 17, 1949, until he became State Purchasing Agent Jan. 15 this year.

The commission has now invited Gov. McMath to appear in the next phase of its hearings beginning Feb. 11. McMath says he "welcomes the opportunity."

The commission at week's end announced it would hear constructive testimony on the operations of highway departments in Virginia and Texas.

It is said both states have agreed to send their top road officials to Little Rock to give information about their general operations. They were chosen because of their general reputation for being among the best.

Wind damage to Golden Gate Bridge prompts studies of strengthening

Two important Golden Gate Bridge developments resulted from a mid-January report made as result of wind-induced motion of the bridge during a December storm. The report made to the bridge board of directors by Consulting Engineer Clifford E. Paine recommended studies on the feasibility of strengthening the structure. It also noted that the motion was greater and of a different nature than originally reported (ENR Dec. 6, p. 28).

As a result, Paine and two consulting engineer collaborators of his choosing will see if a lateral bracing system in the plane of the lower chords of the stiffening trusses can be added to help resist lateral motion. They will also see if the aerodynamic effects can be lessened by damping devices and by open grating flooring on some sidewalk areas. Paine was associated with Joseph B. Strauss on the original design of the six-lane highway bridge noted for having the world's longest suspended span—4,200 ft.

After studying vibration recording instruments, Paine reported maximum vertical vibration of the bridge deck of 130-in. double amplitude with a frequency of 8.4 cycles per minute. This occurred at a quarter point indicating asymmetrical movement similar to Type No. 1 shown in ENR Jan. 11, 1951, p. 32. No conclusions could be reached from studying the instrument records as to whether or not there was torsional motion, but eye witness reports say there was. It was an asymmetrical-torsional, wind-induced movement that led to the failure of the original Tacoma Narrows Bridge in 1940.

These Dec. 1, 1951, movements were the greatest ever recorded on the bridge. They resulted from winds reaching 69 mph, according to Paine. Although greater winds have hit the bridge before, none was so long-enduring nor so exactly in the right direction to induce such a large movement. During long-enduring winds, motion energy builds up in the heavy deck structure permitting large magnitudes to be reached. The Dec. 1 winds were in excess of 50 mph for almost 4 hours with the maximum wind and motion almost coinciding at the end of the third hour.

Heavy rains and the gusty nature of the wind caused California highway patrol officials to close the bridge to traffic for almost three hours between 6 pm and 8:55 pm.

Damage to the bridge has been repaired at a cost reported to be about $70,000. This consisted almost entirely of repairs to connections between the main suspended span and the towers (ENR Dec. 13, 1951, p. 28). Sliding blocks with bronze bushings were replaced. This work was done by the Judson-Pacific-Murphy Corp.

Flood control pays as Ohio River crests

Hard work and hard cash spent in the Ohio River Valley on flood control was rewarded last week as the Ohio River and its tributaries flooded higher than at any time since 1948. In most cities the dikes held and the water was below the tops of the floodwalls.

Emergency workers at Maysville, Ky., placed 120,000 sandbags on its partially completed floodwall. At Middletown, Ohio, the dikes were dynamited to release a backwater. Southwest of Columbus, Ohio, a levee collapsed. Volunteer workers at Zanesville, Ohio, threw up sandbag dikes to keep out the flooding Muskingum River.

But far more typical was the case of Portsmouth, Ohio. Safe behind its 77-ft floodwall, it only expected some inconvenience from the flooding out of surrounding highways and outlying lowlands. The expected crest of 57 ft would be far below the top of its wall. At Cincinnati, Ohio, residents dismissed the 57-ft crest as just a nuisance.

To provide relief money for flood victims the RFC declared the entire Ohio River Valley a disaster area. An emergency RFC office for processing loan applications will be opened at the hard-hit city of Marietta, Ohio. Loans will also be processed at Cleveland, Ohio, and Louisville, Ky.

President Truman, after a plane flight over the flooded areas, said he was impressed by the way the flood was held in check by the control system. The system was said to have prevented at least $25 million in damage.

In addition to the floodwall protection the water was impounded in the network of reservoirs and dams that lace the Ohio Valley.

For example: The Muskingum drainage area has about 14 reservoirs, and all 14 went into operation and stored approximately 395,000 acre-ft or 30% of capacity. At Pittsburgh the Bluestone Dam, where all 14 sluice gates closed for the first time in its history, 94,000 ac-ft were stored.

NEWS BRIEFS

• **Dam developments**—South Boulder Creek Dam near Denver, Col. (ENR Oct. 15, 1951) may have to be altered because of the discovery of a mica-schist rock deposit in the granite walls of the canyon slated to be the dam's abutments. . . . First contract on The Dalles Dam on the Columbia River has been awarded and construction will start shortly. . . . A 2,100-ft long earth-fill dam, spillway, outlet works, and power system is shortly to be let for bids in eastern Idaho on Palisades Dam.

• **Bond issue beaten**—Dallas, Texas, voters confounded their city government by turning down a proposed $19-million bond issue and a proposed city charter amendment to raise the Dallas debt limit. The first organized effort to defeat a bond issue in many years, resulted in defeat for bonds meant for city improvements over a one-year period.

• **Water supply and sanitation**—Being right in the middle of an area of fast-expanding defense industries, Detroit's northeast pumping station and filter plant received an NPA order giving it 4,000 tons of steel "on demand." . . . In 1951, 244 graduated from sanitary engineering courses in the U. S.

• **No rain**—A meeting of the American Meteorological Society was told by E. J. Workman of the New Mexico Institute of Mining and Technology in Socorro, N. M., that rain-making efforts failed. He asserted that the use of silver iodide had failed to increase precipitation and actually had decreased it. The General Electric Co., which has done extensive work in the rain-making field, planned to discontinue its research and not renew its contracts with government agencies, it was reported.

• **AF test units**—Final plans have begun for construction of an $8-million gas dynamic facility at the Arnold Engineering Development Center, Tullahoma, Tenn.

• **Steel expansion**—Bethlehem Steel Co. last week announced a new $40-million expansion program to boost ingot production at its Sparrows Point, Md., plant to 6 million tons annually by the end of 1953. This is in addition to the $45-million program begun last spring. Construction will include a new blast furnace to duplicate the world's record-holding "Furnace H" at the plant; and a new battery of 64 coke ovens.

Interchange traffic on George Washington Bridge approach will be carried on . . .

Box girder on stilts

Howard E. Reid
Construction Engineer

Phillips H. Lovering
Senior Structural Designer

Andrews, Clark and Buckley, Consulting Engineers
New York, N. Y.

SWINGING out from Manhattan Island bluffs overlooking the Harlem River, a concrete viaduct of novel design will soon be carrying two lanes of traffic from a tunnel exit to a bridge over the river. The viaduct is made up of continuous hollow-box girders supported on a single row of long, slender columns.

While a similar design has been used previously in the western part of the United States (ENR June 10, 1948, vol. p 942), this is the first time this type of structure has been used in the East.

The viaduct is also significant as an essential element of an important traffic interchange in the New York City expressway system. It will help speed along automobiles coming from New Jersey and headed for New England and Long Island.

• **Complicated intersection**—The interchange connects the east ends of tunnels from the George Washington Bridge with access roads to the Cross-Bronx Expressway; to the Harlem River Drive, which skirts the east shore of Manhattan; and to Amsterdam Ave., a north-south street.

In addition to the box-girder viaduct, present construction includes rebuilding two parts of an existing multiple-arch viaduct and erection of three bridges for access roads. Total cost of the project is $3,163,500.

The reconstructed viaduct will connect the Harlem River Drive and the interchange. There, vehicles can proceed to the Cross-Bronx Expressway about 400 ft north and to local streets. Or they can take the westbound tunnel under 179th St. to the George Washington Bridge and New Jersey. Another access road connects the westbound lanes of the Cross-Bronx Expressway with the 179th St. tunnel.

Traffic from Amsterdam Ave. and the eastbound 178th St. tunnel will use the reconstructed viaduct to the Harlem River Drive, about 125 ft below Amsterdam Ave. Also, vehicles from the eastbound tunnel will have a direct connection to the street and via the box-girder viaduct to the eastbound lanes of the Cross-Bronx Expressway.

Once on the expressway, traffic will cross the Harlem River on the Washington (181st St.) Bridge. Continuing east across the Bronx, the drivers will have a choice of several parkways headed north and northeast and of connections with the proposed New England Thruway and the Bronx-Whitestone Bridge to Queens and Long Island.

• **Wing design considered**—To connect with the Cross-Bronx Expressway, the new viaduct has to pass over the reconstructed multiple-arch viaduct. Both its height and this crossing precluded the use of simulated arches to match the old structure. Hence, the designers had to find another construction to harmonize with the surroundings.

A shallow steel structure was studied first. Girders were concealed in an envelope of thin stainless steel, giving the bridge an appearance that can best be described as resembling an airplane wing. While the design was attractive, the thin plates, curved in two directions to conform to the roadway alignment, were found impractical.

A combination of a shallow, rein-

forced concrete hollow-box girder and a single row of slender round column gave the desired effect. Also, materials could be used that could be adapted easily to the curvature involved (200-ft radius).

The hollow-box shape has several advantages structurally over T-beams: Less area and weight at midspan; ample space for single-layer placement of tension steel; adequate compression-flange width at supports of continuous girders; easily varied web and flange thicknesses to meet stress requirements; and high torsional strength.

• **Continuous girders**—The new viaduct consists of 10 spans, each 66 ft long along the centerline. In the preliminary design, the girder was made continuous between abutments, but temperature stresses in some of the columns and movement at the abutments seemed excessive. So the structure was divided into three 3-span rigid frames with fixed bases.

This division was accomplished by inserting an expansion joint in each of two intermediate spans at a quarter point. In these spans, a long cantilever extension of one continuous girder is supported on a short projection of the adjoining girder.

Consideration was given to use of rockers at interior expansion joints. This idea, however, was discarded in favor of sliding plates between the lower corbel of the projecting span and the upper corbel of the supported span. Keyways were incorporated to prevent lateral movement at the joints.

• **Cantilevered top flanges**—The girders carry a 26-ft wide roadway, which is banked ¾ in. per ft on the curve, and two 4-ft sidewalks along the outer edges. Since distance out to out of webs is 15 ft, the top flange cantilevers almost 10 ft beyond the webs on two sides. Maximum depth of these projections is 18 in.

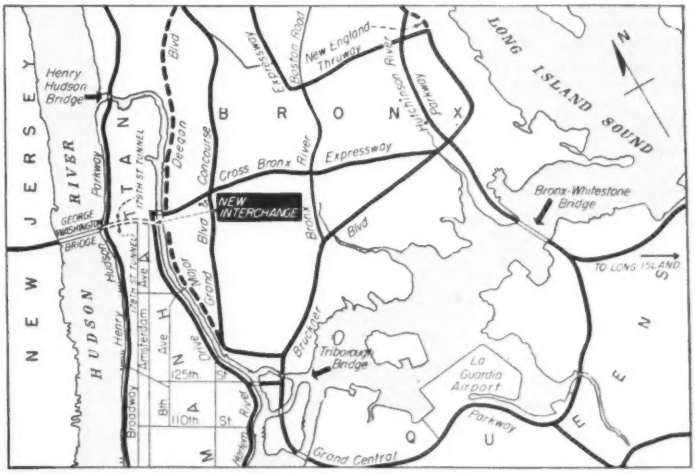
The outer edge of the deck is faced with a steel nosing. This helps maintain alignment and prevents deterioration of exposed corners.

Along the center line, the girders have a constant depth of 7½ in. However, because of the horizontal curvature of the roadway and the superelevation, the web on the inside of the curve is shallower than the outer web but has a shorter span.

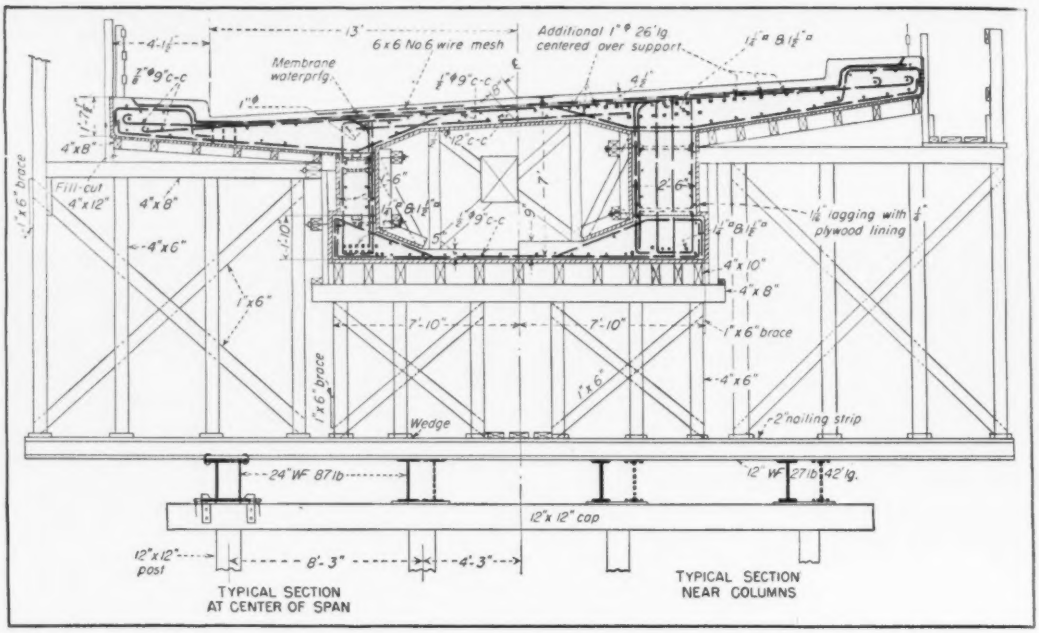
At midspan, the top slab between webs is 8 in. thick and the bottom-slab 5 in. Webs are 18 in. thick, but they and the bottom slab increase in thickness near the supports. The top flange carries a 4½-in. concrete wearing surface.

Four 12-in. thick concrete dia-

ACCESS ROADS to George Washington Bridge (background), Harlem River Drive (foreground) and Cross-Bronx Expressway (off on the right) meet at a traffic interchange on a steep hillside. Box-girder viaduct is at lower right. (Ted Kell Air photo)



EXPRESSWAYS in northern New York City will take traffic traveling between New Jersey and New England or Long Island off city streets. The new interchange is at a key location to facilitate this—at the eastern end of tunnels under Manhattan streets to the George Washington Bridge.



HOLLOW-BOX GIRDER was cast in three steps—(1) bottom slab and web stubs; (2) webs; (3) top flange.

phragms brace the webs in each span. An opening in each diaphragm and one manhole in every span permits removal of forms and future inspection of the girders. Also, an internal drainage system is incorporated for ventilation and to take care of condensation that might occur.

To transfer the shear from the girders to their supports, a 7-ft wide transverse beam is placed over the columns. Reinforcing steel in this beam and the negative-moment steel in the girders make a tight grid of 1¼ and 1⅛-in. bars in the top slab, which was difficult to place, but this was done purposely to obtain a shallow structure of uniform depth.

• **No column forms**—Doweled to the heavy beams, columns vary in height up to 62 ft, measured from top of footing to underside of hollow box. They are only 6½ ft in diameter.

Eliminating the need for temporary forms, columns are concrete-filled steel shells. The steel skin, assisted by steel angles and bars, serves as reinforcement for the concrete. Splices are welded.

For the top 20 ft, the skin is $\frac{7}{16}$ in. thick; for the next 19 ft, $\frac{5}{16}$ in.; and for the bottom section of taller columns, $\frac{3}{8}$ in., extending 5 ft into the footings. At the top of the footing, the shell is seated in a collar made of a ½-in. thick low-alloy steel, chosen for its high strength and corrosion resistance. Reinforcing in this bottom section is heavy: twelve 8x4x1-in. angles, welded to the skin, and forty-eight 1¼-in. bars.

Column bases also are heavily reinforced. They consist of three 5-ft deep steps, largest of which is 18x26 ft. The footings rest on a 1:3:6 mass concrete seat on rock.

Concrete in the top lift of footings in columns and in girders is a 1:2:3½ mix, with a 2-in. maximum slump. Having a 28-day compressive strength of 3,000 psi, this concrete was designed for 1,000 psi. For lower lifts of footings, wider bar spacing was used and permitted a 3,000-psi, 1:2:4 mix.

• **Box cast in three steps**—To form the girders, the contractor first placed concrete for the bottom slab and a small piece of the webs. He left holes in the web stubs to receive bolts for supporting web side forms. To support the top steel in the webs, he laid timbers across the web forms and supported them on posts on the falsework. Forms for the sloping portions of the bottom slab were suspended from these timbers.

Web and diaphragm concrete was placed in a second step. Bolted to the web stubs at the bottom and resting on the previously placed concrete, the web forms were braced at the top by the cross timbers. Diaphragm forms were braced by the web forms.

The top slab was placed in a third step. Forms for the portion between webs were supported on transverse 2x6's and 4x8-in. runners carried on 4x6-in. posts, which in turn were wedged up from the bottom slab. The cantilever slab was supported on

UNIT PRICES FOR MAJOR ITEMS

Description	Unit	Unit Price
Trench, Culvert & Bridge Excavation	cu yd	$8.00
Portland Cement Type II	bbls	3.25
Natural Cement Type N	bbls	4.25
Class 1A Conc. for Struct. (1:2:3½ Mix)	cu yd	40.00
Class 1 Concrete (1:2:4 Mix)	cu yd	34.00
Class 3 Concrete (1:3:6 Mix)	cu yd	30.00
Dimension Masonry	cu yd	300.00
Granite Facing	cu yd	495.00
Granite Coping & Steps	cu yd	390.00
Stone Flagging	sq yd	35.00
Steel Fabric Reinforcing	sq yd	0.50
Bar Reinf for Structures	lb	0.13
Structural Steel	lb	0.19
Miscellaneous Metals	lb	0.35
Cement Conc. Pavt.	cu yd	15.00
Membrane Waterproofing	sq yd	2.00
Protection Course for Memb. Waterproofing	sq yd	1.50
Granite Curb	lin ft	6.50
Metal Railing	lin ft	20.00
Brick Facing	sq ft	1.30
Furnish & Install Lampposts	ea.	550.00
Furnish & Install Luminaires	ea.	120.00

TIMBER BENTS of adjustable length supported the formwork for each of the three 3-span hollow-box girders in turn.

4x8-in. longitudinal stringers shored to falsework bents.

Formwork for exposed surfaces was 1⅛-in. lagging lined with ¼-in. plywood. Lining was placed so as to make the longitudinal form marks symmetrical about the centerline of the girder. To produce the curved fascias, 2x6-in. longitudinals were cut to radius.

• **Falsework re-used**—One three-span girder was formed at a time. The formwork, which was prefabricated, was supported on temporary bents spaced 22 ft apart, later re-used for the other girders.

To support this falsework, the contractor utilized the viaduct column footings, where possible, or a park area retaining wall that ran between some of the columns. Where necessary, he built temporary 2-ft square reinforced concrete piers up to 20 ft high.

Across each pair of supports and anchored to them with ¾-in. bolts, the contractor placed a 30-in. 172-lb wide-flange beam. He then erected the bents—four 12x12-in. timber posts, braced with 3x8's and capped with a 30-ft long 12x12. The bents carried steel beams, which in turn supported the formwork shoring.

Three typical heights of bent were used—36, 43 and 47 ft—and a shallow 9-ft bent. By making different combinations of this shallow bent with the three typical bents, the contractor was able to re-use the falsework for supporting the forms for the second and third sections of the viaduct.

• **Cost**—Including abutments and brick-faced wing walls, the structure cost about $625,000. A breakdown into unit prices is given in an accompanying table. Work on this contract started Aug., 1950, and was completed Jan. 1, 1952.

This section of the Cross-Bronx Expressway is being constructed with federal-aid funds by the New York State Department of Public Works. J. J. Darcy is district engineer, Joseph Guerin engineer for the state.

The work, under general supervision of Commissioner Robert Moses, New York City construction coordinator, is part of the expressway designed jointly by Andrews, Clark & Buckley and Hardesty & Hanover. W. Earle Andrews was responsible for the architectural and general treatment and Phillips H. Lovering for the structural design. Howard E. Reid is in charge of construction and James Carroll is the resident engineer for the consultants.

Poirier & McLane Corp., of New York City, was the general contractor. U. Serra Zanetti is project engineer, Ernest Bodily, job superintendent, and Robert Johnson, field engineer.

Water supply granted for Alcoa plant

The State of Texas has granted a permanent water supply for operation of the $103 million Aluminum Company of America plant to be constructed at Rockdale, Texas.

The State Board of Water Engineers issued a permit for 18,000-acre-feet of water per year, to be diverted in time of high flow from the Little River. The application was modified to increase the amount of storage in a reservoir from 10,500 to 12,000 ac-ft so as to permit diversion only in times of high flood.

The application was given to Sandow Co., a subsidiary of Alcoa. The water principally will be used for operation of the new generating plant which will provide 300,000 kw of capacity to power the aluminum plant. This is said to be the first big electric generating plant to use lignite for fuel.

The Sandow Water Co. will build a pumping station on Little River seven miles north of Rockdale, which will have a capacity of 30,000 gallons of water per minute but which will be operated only an estimated one-third of the time. The water will be carried in a 36-inch pipeline to an off-stream reservoir in First Yegua Creek, adjoining the new power plant located seven miles southwest of Rockdale.

An earth dam will be built, 50 ft in height and one and one-tenth miles in length, which will impound the 12,000 ac-ft of water.

THE MAIN CANAL is cut through beds of loess soil, largely wind-deposited. This picture was taken in 1939, before the canal had been put into service.

Silt injection checks seepage losses from water-supply canal in Nebraska

George E. Johnson
Chief Engineer,
The Central Nebraska Public Power and Irrigation District,
Hastings, Neb.

SILT INJECTION on a scale never before attempted is now under way in south-central Nebraska to check large seepage losses from the main supply canal of the Central Nebraska Public Power and Irrigation District. Begun in a small way in October, 1950, to gain experience, the work is now progressing at such a rate that from three to four miles of canal prism are made reasonably watertight each month, working two 10-hr shifts each day.

Construction of the initial units of the projects now included in the Central Nebraska District—the Sutherland and Tri-County projects—was begun in 1934 (ENR Oct. 11, 1934, p. 469; April 27, 1939, p. 546). Then main features are Kingsley Dam on the North Platte River, which stores two million acre-feet of water, diversion dams on the North and South Platte, 72 miles of main canal having a capacity of 2,500 cfs, and power plants at drops along the canal as it carries irrigation water to the lower part of the Platte valley.

There are 26 rolled-fill dams along the main canal to block off side valleys or to form reservoirs.

Those dams are built on the fine loess soil that is characteristic of the area and the canals are cut through the loess for many miles. This soil is so fine that 80 percent of it will pass a 200-mesh sieve. Most of it lies in wind-blown deposits, generally from 50 to 150 ft deep. Beneath the loess are deep beds of sand and gravel.

Due to the semi-arid nature of the region, the loess soil never has been saturated and consolidated. Most of it has a dry weight of from 80 to 87 lb per cubic foot. All of it is porous and will slump when completely saturated.

When the canals were cut and the dikes built in the period 1934-41 the engineers realized that there would be settlement under the dikes and control works when the underlying loess became saturated, also that there would be a large loss of water from the canals due to seepage if they were not lined. Lining so many miles of canal, however, would have made the cost of the project prohibitive.

Consequently, it was decided to consolidate the soil under the concrete structure by silt injections during the first year that the project was in operation and to correct the worst seepage conditions along the canals as they developed in later years. That work now is in progress, as will be described later.

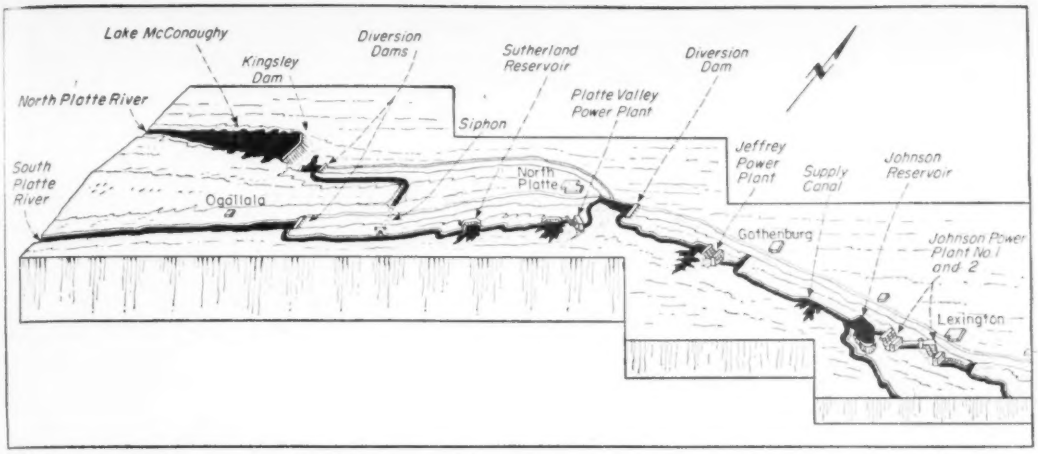
• **Work on the dams**—On the 26 earth dams, which impound water to depths of 40 to 70 ft, laboratory tests showed that by adding about 2 percent of moisture in excess of the optimum required for construction, the dams would have a sufficient amount of ductility to take care of settlement due to consolidation of the underlying loess as it became saturated.

After the reservoirs had been filled to within 10 ft of top elevation and when percolation of water in the soil under the dams had reached the one-half to two-thirds point, the boring of injection holes and injecting of loess slurry was begun. This was done more in the interest of the checking seepage than to prevent settlement, hence no effort was made to get the underlying soil as dense as was desired under the concrete structures where settlement would be serious.

• **Consolidation under structures**—Experience gained in consolidating soil under the concrete structures was of material help in planning the canal work now in progress, hence it will be described in more detail.

When the project was put in operation, no difficulty was encountered from slumping of the soil under load until the watertable began to rise. On the heavier structures, where there was considerable distance between their footings and the sand and gravel layer, silt injection was begun when moisture penetrated down one half the distance to the gravel beds.

At the Johnson Power Plant No. 1 when that stage had been reached, sinking of holes for silt injection was



WATER for irrigation in south-central Nebraska is carried through 72 miles of main supply canals between diversion dams on the North and South Platte Rivers and the Johnson No. 2 power plant, the last power drop on the system. Irrigated areas are fed by the two canals shown in the lower right corner of this sketch.

begun back of the wingwalls of the intake and was carried down the slope under the penstocks to the power house. They were 4-in. holes, sunk to the gravel bed, generally about 140 ft. Into these wells, 2-in. pipes 40 ft long with burlap wrapped around the lower end were pushed, the burlap forming a plug to seal off the lower part of the well. On top of this plug, moist loess was dumped and tamped until the top of the well was filled.

Then a slurry of 5 percent bentonite and 95 percent loess was pumped down the 2-in. pipe with a plunger pump at pressures from 125 to 150 psi. Later, it was found that the bentonite was unnecessary, that better results could be obtained by selecting loess with the proper particle sizes.

This plan was followed for all concrete structures, except the power plants, sinking holes on each side close to the structures. Pumping never was done in more than two holes at one time to avoid any danger of uplift. To get complete consolidation it was necessary to space holes from 10 to 20 ft apart.

As the saturation line rose in the soil there was sufficient consolidation to permit more slurry to be pumped in. From 12 to 20 cu.yd. were used in most holes, pumping first at the 40-ft depth and then at 20 ft.

Silt injection was not necessary under the power houses as sites were found for them where the foundations could be placed on a bed of conglomerate and gravel or cemented sand overlying gravel.

Between 1939, when this work was started, and 1945, injection work was done on the other principal structures at three different times. On the last application, the holes took only from one to five yards of loess slurry.

Recently, test holes were sunk at the intake structure for the Johnson No. 1 plant, 10 and 15 ft from the canal where the water stands 30 ft deep. These borings were 117 ft deep. After three weeks no seepage appeared, while as late as 1946 seepage from the canal in that area was serious.

• **Silt injection along canals**—Records kept during the past four years show that water is being lost from the main supply canal at a rate of 250,000 acre-ft per year, or 21 percent of the water diverted into that canal. Along the canal above the Jeffrey Power plant, where some silt injection work has been done, this loss amounts to less than one tenth of one percent per mile, on the section between the Jeffrey and Johnson No. 1 plant this loss is four tenths, and between the Johnson No. 1 and No. 2 plants it is over five tenths of one percent per mile per year.

Because of this seepage, some 6,000 acres of the 100,000 acres between the canal and the river have been put out of production at various times due to this seepage, and 2,000 acres have been damaged permanently.

To end this damage and at the

DRILLING INJECTION WELLS at 50-ft intervals along the canal bank. Six such drills are used. The canal at this point is lined as it approaches a control structure. Most of it is unlined.

SLURRY MIXER (above) and one of the low pressure pumps, which delivers slurry through a 4-in. fire hose to the two headers located on each side of the canal.

same time conserve the water that now is lost through seepage, the current large-scale injection program was started between the Jeffrey and Johnson No. 1 plant. This section has a length of 39.6 miles.

Enough equipment to treat one-half mile of canal at one time was assembled, beginning last October, to permit an early start this year. Holes for silt injection first were spaced 30 to 40 ft apart along each canal bank, but now they are being spaced 50 ft.

Between October and March, much experimental work was done to determine the gradation of silt that could be pumped through headers serving injection well along a half mile of canal and to determine the extent of the consolidation of the underlying soil resulting from injection of the slurry. It was found that partial consolidation extended as far as 100 ft from the injection wells, and that seepage could be checked as far away at 80 ft. Hence it was not necessary to sink wells through the bottom of canal to check seepage.

This consolidation could be accomplished, generally, with pressures of from 80 to 125 psi, but sometimes it was necessary to go as high as 270 psi. The objective, based on laboratory studies, was to cut the moisture content of the saturated soil under the canal and in its banks from a normal of 30 percent to 12 to 14 percent.

• **Soil for injection work**—For the silt injection, a loess soil is sought that does not show more than 20 percent fine sand and not more than 16 percent of clay or other colloids. In this, the principal problem is to find a soil that has sufficient lubrication from colloids to permit of its being pumped one-half mile without more than 50 psi drop in pressure due to friction and yet one that will consolidate under pressure when injected in the canal banks.

Mixing is done in mixers built for the purpose because of the large volume of slurry to be handled, from 500 to 1,000 gal. per min. The slurry now being used is about one-half water and one-half loess by weight. It is very loose when it reaches the mixer and weighs about 65 lb. per cu ft.

Each of the two 3-in. fire-hose header lines that serve the injection wells is one half mile long and supplys slurry to 51 wells through 17 "T" connections. A 50-ft length of 2½-in. fire hose is connected to each "T", and each serves three injection points. At the wells, each of these

(*Continued on page 37*)

BOOSTER PUMPS that take slurry from the 4-in. hose line at 40 psi and raise the pressure to 150-175 psi for delivery through two 3-in. fire-hose headers.

WHAT'S A WHOLESALER?

At the end of every production line rises the greatest single responsibility of business—the profitable distribution of a product. So important is this responsibility that men all over the world dedicate their minds, money, voices, hands, eyes, ears, noses, nerves, and sometimes their very lives to its fulfillment.

As a group these men are termed "Salesmen", "Representatives", "Agents" and "Reps". They are called other things frequently.

So intent are they on marketing their products successfully, and so dire are the consequences if they don't, that they solicit the help of one of the most singularly important influences in the distribution cycle—the wholesaler.

The wholesaler has been known as a "Jobber", "Distributor", "Dealer" and smiles more often when called a wholesaler than by any other name.

He is linked to reputable manufacturers by supply, to their salesmen by merchandising, to his family by love, his employees by loyalty and to his customers by outstanding service and friendship.

He places more orders, receives more merchandise in greater variety, stocks and restocks more shelves, makes more shipments in less time, holds more confidences and credit across longer counters with a larger capital investment in a smaller area than does either his suppliers or his customers.

Every day he dispenses more information on a wider variety of products than is provided in the literature furnished him. It is taken from years of experience and is added to the knowledge of the craftsmen who are his customers.

The wholesaler can be counted among the members of leading associations, civic groups, fraternal orders, religious societies, country clubs and bowling leagues. His divergent interests compel him to be up early and out late. His favorite but rare relaxations are found at home, on vacation, with a fishing rod or behind a bird dog, at a card table and over a cup of coffee with Joe around the corner.

The wholesaler is not typically a small businessman, neither is he a tycoon; rather, he is a well established, highly regarded commercial institution; sincere, practical, reliable; and on his shoulders rests the production lines of tomorrow—profitable distribution today.

BUY FROM YOUR WHOLESALER

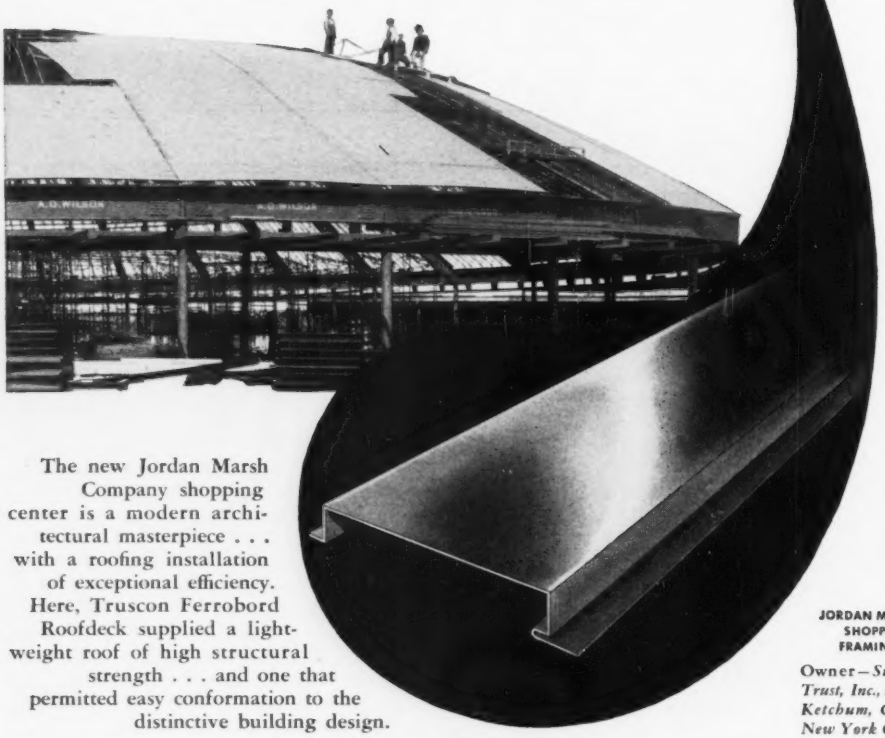
WOLVERINE TUBE DIVISION, Calumet & Hecla Consolidated Copper Company, Inc., *Manufacturers of seamless, nonferrous tubing,* 1457 Central Avenue, Detroit 9, Michigan. Plants in Detroit, Michigan and Decatur, Alabama.

Architect Giná *of Ketchum, Giná & Sharp*
says:

"The unique design of this modern shopping center offered special roofing problems...

we met them all with

Truscon Ferrobord® Roofdeck!"



The new Jordan Marsh Company shopping center is a modern architectural masterpiece . . . with a roofing installation of exceptional efficiency. Here, Truscon Ferrobord Roofdeck supplied a lightweight roof of high structural strength . . . and one that permitted easy conformation to the distinctive building design.

Truscon Ferrobord is adaptable to flat, pitched or curved roofs. The 6" wide units are so designed and formed that each firmly interlocks with the adjoining unit along the entire length, achieving the maximum in lateral distribution of concentrated loadings.

See SWEET'S for complete details on Truscon Ferrobord Roofdeck; and write for detailed literature on all other Truscon Steel Building Products. Truscon Steel Company, 1064 Albert Street, Youngstown 1, Ohio. Subsidiary of Republic Steel Corporation.

JORDAN MARSH COMPANY SHOPPING CENTER, FRAMINGHAM, MASS.

Owner—*Suburban Centers Trust, Inc., Boston.* Architect: *Ketchum, Giná and Sharp, New York City.* Contractor: *George B. H. Macomber Company.* 140,000 *Sq. Ft., 20 Gauge 1½" Truscon Ferrobord Steel Roofdeck.*

TRUSCON
MARK OF MERIT PRODUCTS

TRUSCON a name you can **build** on

QUANTITY AND PRESSURE of the slurry as it goes into each injection pipe is measured by a flow meter and pressure gage, as shown here.

(*Continued from page 34*)
lines is connected to a plug valve and a flow meter with a pressure gage.

• **Pumps redesigned**—All pumping is done by centrifugal pumps, and as no sand or gravel pumps were available that would give the quantities wanted at the required pressures, all pumps were redesigned. To take the slurry away from the mixer, two gravel pumps were placed in series and their impellers were redesigned to permit speeding them up from 900 to 1,800 rpm while getting 150 to 180 lb pressure at full load.

At the half-way point are two-stage booster pumps, also with redesigned impellers. Clear water under high pressure is pumped into the stuffing boxes of these pumps to keep silt from getting into those boxes. All shafting and seal rings have been metallized with hard stainless steel. The standard brass impellers had to be replaced with cast iron as they only lasted a week in this service. The cast-iron impelers last from six to eight weeks.

Flow meters at the injection wells are adjusted to measure the silt by gallons, based on a slurry of half water and half silt. The total flow, generally, is 20 to 24 gpm. Quantities range from 15 to 300 cu.yd. of slurry per hole.

• **Injection Wells**—Injection wells are sunk to the underlying gravel and sand beds, from 90 to 150 ft. Six-inch wells and 2-in. injection pipes are used, and the injection method is similar to that described previously for the concrete structures, except that road gravel is used to tamp around the injection pipes. Gravel compacts better than silt under water.

When pumping into one hole, slurry frequently will come out of a well 50 ft away, and occasionally at a distance of 100 ft. In such cases, the adjoining well is capped.

There has been little difficulty with blowouts into the canal, possibly because of the water pressure and consolidation of the saturated soil close to the sides of the canal. When blowout occurs, the well is allowed to stand a few hours, after which injection is started at low pressure to determine whether the break is closed.

Costs are running at about $1,500 per 24-hr day. As about 1,500 cu.yd. of silt are being injected each day, this puts the cost per yard at around $1. The field force averages 70 men.

Silt injection work along the Outlet Canal between Johnson Lake and Johnson No. 1 powerhouse was completed April 17, 1951, and work was started immediately on the canal between the Jeffrey powerhouse and Johnson Lake. Up to Nov. 1, 60% of that work had been completed.

In the initial development of this silt injection work, from 1937-1940, the author was assisted by W. I. Turnbull as soils engineer. R. O. Green was assistant chief engineer in charge of field work. At present, Ted Johnson, resident engineer and superintendent of the supply canal and power production, is in charge of the laboratory and the silt-injection work.

Contractors shy away from design changes

No significant alternate designs for barracks buildings were submitted by eight bidders in a bid opening Jan. 22 on a permanent troop housing program at Fort Ord near Monterey, Calif. This means that contractors could not make significant cost improvements on the Corps of Engineers design. It could also mean they have been discouraged from submitting alternate designs as result of confusion with bidding on recent warehouse jobs (ENR Jan. 10, p 83).

Low bidder was the Del E. Webb Construction Co., Los Angeles, submitting a $12,614,832 offer on the basis of Army designed masonry wall construction. Next low bidder was Robert E. McKee, Inc., Los Angeles, with a $13,281,804.16 figure on Army designed concrete wall buildings. Except for Webb and one other, all bids were on the concrete design. The high bid figure was $16,038,803.50 and the government estimate was $17,180,966.

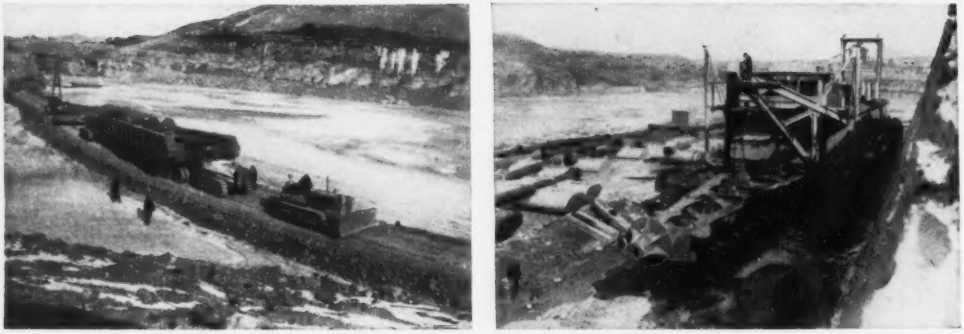
One firm submitted an alternate bid some $260,000 lower than his basic bid for haunched slab rather than concrete joist construction. This firm offered to include a Presan slab analysis giving contours of bending moment and required steel.

Two days after the Fort Ord bid opening, the Corps of Engineers in Sacramento announced award of a contract for a warehouse at the Sharpe General Depot, near Stockton, California, to the low bidder on the basis of the Army design.

The award was made despite the fact that the same bidder, a joint venture called the Four Companies, submitted several alternate design bids that were lower. The award was for $8,434,826 to Barrett & Hilp, Charles L. Harney, Theodore G. Meyer and Macco Construction Co.

The reason given by the Army Corps of Engineers for rejection of the alternate bid was that the designs submitted were not structurally equivalent to the Army design. Observers said this action would further discourage if not kill altogether submission of alternate designs by contractors.

• **Trend seen**—Aside from the lack of alternate bids, there were two other significant matters in the Fort Ord opening. First is the continuing trend of bids lower than government estimates. The other is the variety of contractor participation patterns. There were three firms including the two lowest bidders that bid without benefit of joint venture partners. That reverses a trend toward joint ventures on multi-million dollar jobs.



LADDER SECTION weighing 85 tons was unloaded at railroad and trucked down into assembly pit (at left) where it was assembled with the dredge (at right) during the 1950-51 winter.

Portable dredge pays off at Fort Randall

BIG DREDGING JOBS call for big dredges. But ordinary big dredges can't be transported safely and easily in shallow water. This was the situation at the Corps of Engineers' Fort Randall dam on the Missouri River in South Dakota.

With nearly 5,000,000 cu yd of channel and embankment dredging to be done—and no chance to float a big dredge up the shallow and treacherous Missouri—contractors on the project decided to have one fabricated in sectional assemblies, ship it in by rail and assemble it at the damsite.

Yardages to be moved and tough digging in undisturbed, dense chalk rock dictated that the dredge be a powerful one. And it is. As described in ENR, Dec. 20 p. 36, this 36-in. suction, 30-in. discharge dredge—with its 10,950-hp of diesel engines driving 8,100-kw of electric generating power to operate its 8,310-hp of operating motors—is believed to be the most powerful suction dredge in the world.

Christened, "Western Chief," after its owners, Western Contracting Corporation, Sioux City, Iowa, the 1,500-ton dredge measures 238 ft from cutterhead to spud.

• **Big dredging job**—During the 1951 construction season at Fort Randall the dredge moved 2,352,000 cu yd of approach and outlet channel excavation. The contractor has submitted a proposal for using the dredge in pumping the fill required for the diversion dam next year. This operation will require the dredging of 150,000 cu yd of sand from the riverbed and replacement with 200,000 cu yd of chalk, forming a blanket on which the dam would later be constructed.

An attempt was made to place the chalk blanket this past working season but only about 30,000 cu yd were placed before ice in the river required suspension of operations. Construction of the diversion dam will require the placing of 100,000 cu yd of chalk. In addition, the last 1,000,000 cu yd of hydraulic fill will be placed in the closure section of the main embankment. This may be increased to 1,800,000 cu yd.

CLOSURE of Fort Randall Dam on the Missouri River is scheduled for next July, possibly by a hydraulically-placed chalk fill. Corps of Engineers photos.

• **Cold-weather assembly**—The Western Chief was assembled in a so-called dry pit between Nov. 25, 1950 and April 25, 1951. It was a cold-weather job performed in sub-zero temperatures, but construction schedules dictated that the dredge be ready to go at the start of the 1951 construction season. During the worst weather there was a 14-in. sheet of solid ice in the pit.

After the dredge was completely assembled last April, the assembly pit was flooded by digging a trench, by dragline, from the pit to the river. This trench, 30 ft wide at the bottom and about 3,300 ft long, was located in the approach channel area along the right bank.

• **Approach channel**—As soon as the dredge was waterborne it went to work dredging the 600 ft wide by 3,300 ft approach channel. By July 6 the channel had been completed from the protective plug just above the intake structure to the river.

• **Outlet channel**—Following completion of the approach channel, the Western Chief was floated about

6,000 ft down the river to dredge the outlet channel.

Dredging the 1,000 ft wide by 2,000 ft long outlet channel was started July 27 and completed Oct. 3. Of the 850,000 cu yd of material removed from the channel, about 80,000 cu yd was chalk rock.

It was necessary to drill and shoot about 40,000 cu yd of this chalk; the remainder being chewed up by the 9-ft dia cutterhead, while in its natural state, and passed through the dredge pump and discharge line. The dredge pump can pass 18-in. material without difficulty.

• **Heavier than shale**—The name "chalk" belies the composition of this material found at Fort Randall dam. It has a compressive strength of 1,520 psi. and a dry weight of 113-lb per cu ft, as compared with Pierre Shale found in that area weighing 75 lb per cu ft.

On the other hand the rate of abrasive wear on the dredge pump casing was greater when pumping sand than when working in the chalk. In some instances the pitted pump casings had to be repaired by welding hard-facing metal after pumping only 200,000 cu yd of sandy material.

Best 24-hr day's work performed by the dredge to date, using a total crew of 60, was 52,000 cu yd pumped through 3,500 ft of 30-in. discharge line, under a 35-ft lift.

• **Chalk blanket**—When the chalk blanket is completed this spring it will cover an area 1,000 x 1,000 ft extending from bank to bank of the river, just below the toe of the main embankment. In addition to supporting the diversion dam, the blanket will stabilize the sandy river-bed. Sand will be dredged to a depth of 10 to 13 ft over the 1,000 sq ft area, and replaced with chalk to a depth of 3½ to 6 ft.

Methods to be employed in completing the blanket will be similar to those used last fall before ice in the river stopped the work.

• **Strip method**—Shifting sand caused by river current makes it unfeasible to dredge the entire area before placing the blanket. Consequently, it has been decided to dredge to the required depth and place the chalk to its full depth in 250-ft wide strips from the lower to the upper boundaries of the blanket.

First operation last fall was to stabilize the right bank of the river with a 25-ft thick revetment of dumped stone. A portion of the adjacent 250-ft width of channel was then dredged and covered immediately with the blanket. Chalk for making the blanket has been excavated from the outlet channel under another contract and stockpiled on the left bank of the river, just below the lower edge of the blanket.

When work starts in the spring, the dredge will be nosed into the stockpile of chalk, and its 30-in. discharge line connected to a 400-ft section of land pipe running upstream along the left bank. The upper end of this land pipe will be connected to 800 ft of pontoon-supported pipe extending out into the river which, in turn, will be joined to 400 ft of pontoon pipe running back downstream to a spill barge.

• **Flexible pontoon line**—Flexible couplings will be installed at the upper end of the shore line and at the outboard end of the 800-ft section of the pontoon line. This will permit swinging the spill barge both back and forth across the 250-ft width of excavated channel and up and down stream.

By this method, a 300x250-ft area can be blanketed before adding a 300 ft length of shore line and making a new set-up. Four cables running from two 2-drum winches on the spill barge to shore anchorages will maneuver the barge over the area being blanketed.

The pontoon line will extend about 25 ft behind the barge; being supported by cables running up to the top of an A-frame anchored to the barge deck. A flared skirt on the bottom of the discharge end of the line will help spread the chalk evenly. Three hatches along the bottom of the pipe between its end and the spill barge also will be used in getting an even distribution of chalk forming the blanket.

• **Making the closure**—Closure of the river channel—at present constricted to a 1,000 ft width between the main embankment sections built out from each original bank—is scheduled for this summer. The actual date of making the diversion, however, will depend upon the volume of river flow.

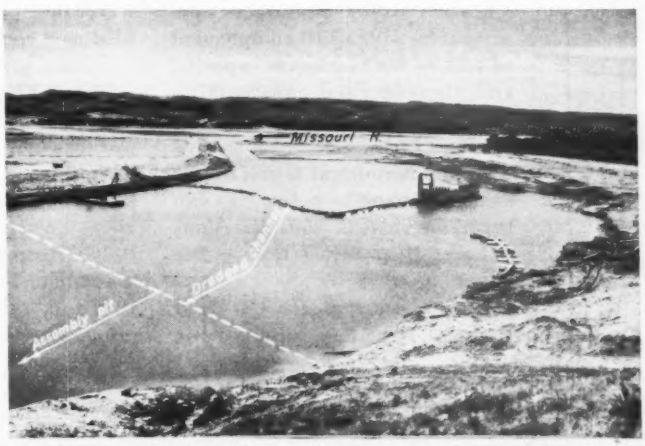
Specifications call for construction of the diversion dam to be started July 16, if the river flow is less than 30,000 cfs; or any time during the remainder of that month that it falls to 30,000 cfs; or any time during August that the flow falls below 40,000 cfs.

Prior to making the closure, both earth plugs above the intake structure and the one below will be removed; and diversion will be made through the dam's twelve 22-ft tunnels—8 for hydroelectric power and 4 for reservoir regulation and flood control (ENR Nov. 2, 1950, p. 38).

• **Contractor's top men**—Men in charge of Western Contracting Corporation's dredging operations at Fort Randall Dam are: John Yasich, project superintendent; Otto Hester, dredgemaster; Carl Schewsaw, chief dredging engineer; and Louis Trahan, dredge operator.

The entire project is being built under the supervision of Col. H. J. Hoeffer, district engineer, Omaha District; and Brig. Gen. D. G. Shingler, Missouri River Division Engineer, Corps of Engineers.

• **Engineers in charge**—Men in charge at the damsite include: George O. Evans, area engineer; Charles R. Brown, assistant area engineer and chief of construction; B. M. Babb, resident engineer on embankment; John Hayes, resident engineer on the outlet works; and Ralph Fitzhugh, in charge of dredging.



FOLLOWING ITS ASSEMBLY last spring, the Western Chief dredged its way out to the river removing 1,500,000 cu yd of material from the intake approach channel; stockpiling 1,000,000 cu yd for future use in the final section of main embankment.

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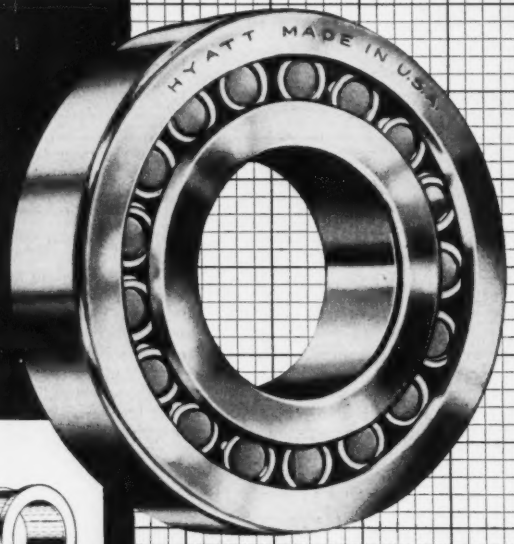

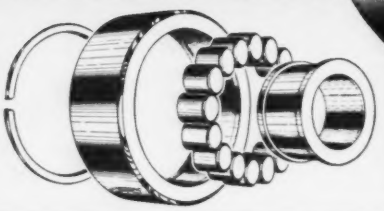

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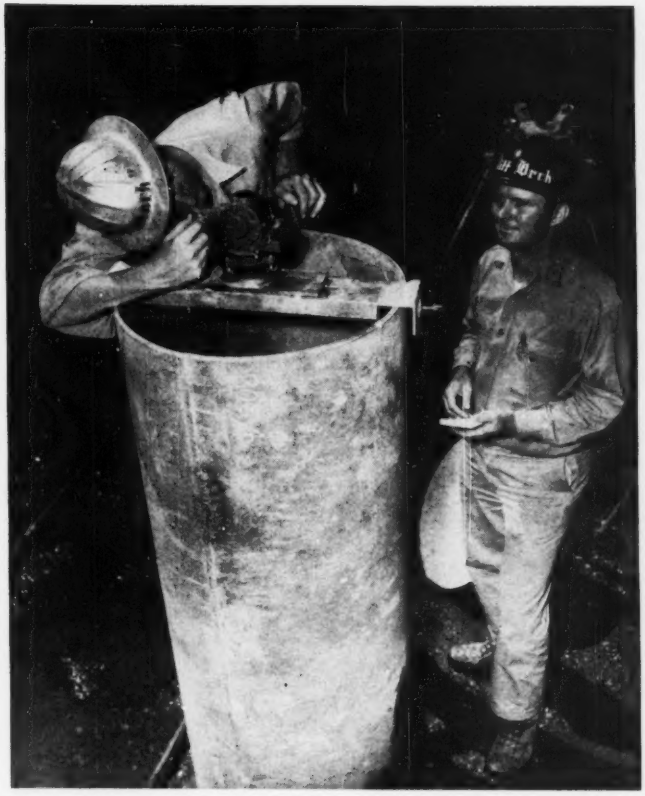

CONSTRUCTION LAYOUT SURVEYS for Hungry Horse Dam are controlled by carrying vertical lines up through dam or up its face. Here, optical plummet gets point through 24-in. vent pipe for penstock.

OUTSIDE APPROACH—Plummet on form bracket sights control target on concrete face below.

CONTROL TARGET—When form is stripped, new bracket is installed and the target is clamped on vertical line.

Optical plummet saves $37,000

C. I. Beck
Chief, Dam Surveys
U. S. Bureau of Reclamation
Hungry Horse, Montana

ELIMINATION of one field party and sharp reductions in other survey work have resulted from adoption of the optical plummet in construction layout at Hungry Horse Dam.

The party alone would have cost $12,075 a year. Total savings over a two-year construction period will be at least $36,969. The total includes elimination of re-runs and checks that are unnecessary because of the new method's inherent precision.

Principal savings lie in the layout of mass-concrete blocks, where the block centerline must be established before elements such as downstream face forms and penstocks can be laid out.

To establish the centerline, surveyors bring up a vertical line, either through the previously-placed concrete or on its vertical upstream face.

The latter approach is preferred and is used in blocks where trashracks do not obstruct the sheer face.

• **Interior approach**—Second preference is to project the line upward through penstock vent pipes. This is possible in four blocks. A third method, employed in two blocks, utilizes a pair of eight-inch pipes in each block extending vertically from the foundation gallery. The plummet is used to bring up vertical lines from reference points set in the foundation gallery one foot from each transverse joint line. Thus, there are two reference points available in each of these blocks, eliminating the need for bringing in centerline from targets at a distance from the dam itself. (The dam's upstream face has a constant radius of 1200 feet.)

• **The optical plummet**—The instrument that saved all the money is constructed in such a manner that it can be set up on a true vertical line over a reference point. It then can be rotated vertically 180 deg. to project the line of sight upward.

Instrumental error is taken out the same as it is in horizontal transit sights. In correcting the error with the transit, direct and reversed sights are projected ahead and the mean is taken as the true point. With the optical plummet the telescope is rotated in each of four quadrants, producing four points whose center is the true vertical point.

Before the optical plummet method could be used, a basic reference point was established in the foundation lift of each block—either in the gallery or in the bottom of the penstock vent,

or on a bracket built out from the upstream face.

The last-named initial-point location serves the exterior approach. It is on the block centerline at a known station. A bracket, on the upstream form for the next lift, supports the plummet in approximate position. Precise position is obtained by sighting downward on the reference point and moving the plummet on the bracket. Slotted holes in plates permit the plummet to be bolted tight in the precise position.

The plummet is removable from its base, which also accommodates an optical transit. When the plummet is in precise position it is removed and the transit is installed for completion of block layout by conventional methods.

In the penstock vent approach the reference point is established as a ¼-in. hole in the closed top end of a cylinder made of ¼-in. steel plate. The lower end of the cylinder is open. Supported by a spider welded in the vent, the "can" contains a light that makes the point visible down the vent.

When vertical line is to be brought to a new lift the plummet is set up on the vent as shown. Again, precise position is accommodated by sliding the mounting, and the transit is substituted to accomplish actual layout.

Gallery points are in the floor. For sighting them down through the 8-in. holes, the plummet (and later the transit) is mounted on a tripod. After the first sight, quicker reference is provided by marking the point on a wooden plug set temporarily in the top of the 8-in. hole.

• **Other uses**—Although the most significant savings took place in block layout, there also were savings in elevator shaft and trash-rack work, alignment of fixed-wheel gate guides and other mechanical installations. Here, offset lines were projected upward to establish bracket targets on concrete short distances below new formwork. The forms then were checked out with ordinary plumb bobs suspended over the target.

• **The savings**—Bringing in the initial control for blocks involves the intersection of long sights, from reference points outside the dam. Without the optical plummet, this operation would have to be repeated for each lift, requiring the full-time service of a field party. The annual cost of such a party (salaries only) would be $12,075.

Elevator and trash-rack layout now require only three days of work monthly by two men, instead of thirty days by the same men. The saving here is about $5,380 annually. Resurveys to find errors inherent in the former methods cost $1,033 per year.

The annual total saving resulting from use of the optical plummet is about $18,500. In two construction years the saving will be $37,000.

Advantages of the optical plummet method of control are:

1. It speeds up work by eliminating the time required to bring in a control point from outside the dam every time a new block lift is ready to be laid out. Layout of the entire block now is accomplished in about the same time as was required to establish the control point by the old method.

2. It reduces opportunity for error by eliminating all but one long sight per lift layout. (The sight for angular reference.) Parallax, refraction, dilation of the blind area behind the cross hairs and human errors make it desirable to reduce the long sights.

3. It cuts down interference between contractors' and surveyors' work. One of the biggest headaches encountered by the surveyors when using the old control methods was the raising of forms, which often delayed the sighting of the outside targets.

4. It is easier on today's surveyor, who is likely to be inexperienced and therefore prone to be rattled by the inevitable errors of the old system.

5. The method used in two blocks—sighting through vertical 8-in. pipes to points in the galleries—provides an excellent way for checking dam behavior after the dam is completed. By building an instrument mounting into the top of the opening the tilting movement of the dam can be measured with the optical plummet and the horizontal movement can be measured with the transit.

Working to eliminate the disadvantages of the old block layout system, members of the Field Engineering staff at the Hungry Horse Project developed the optical plummet system. The basic idea of using the optical plummet was developed by E. J. Niemen, Field Engineer. The detailed studies and field work necessary to adapt the idea for use in survey control work on block layout were carried out by A. A. Brownson, Chief, General Surveys, and the author.

Navy studies floating drydock design

Improved designs of floating drydocks—both steel and concrete—are under active study by the Navy's Bureau of Yards and Docks.

Rear Adm. Joseph F. Jelley, chief of the bureau, said his designers contemplate new type concrete drydocks of greater maneuverability.

They are also studying plans for steel drydocks which can be moved and assembled more easily and quickly than those now serving the fleet.

Major interest at present is in concrete floating drydocks. They would cost less to build than their steel counterparts. In designs now under study the only steel required would be reinforcing steel and they would require 75% less steel tonnage than the all-steel floating drydocks.

Rear Adm. Joseph F. Jelley

• **Easy to build**—In addition, concrete docks could be constructed for the most part by building trades labor. Few trained shipbuilders would be needed. Maintenance costs for concrete units are much lower, and damage to hulls is, in general, easier to repair, the Navy states.

Chief aim of the Navy is to achieve a lighter concrete floating drydock of greater lifting capacity. Thirteen concrete docks were built during World War II, but because they were heavier than steel docks of equal dimensions, their lifting ability was less. They were also more difficult to move than steel docks of the same size.

New developments have stimulated interest in both monolithic and sectional concrete auxiliary repair docks. If plans are successful, Navy civil engineers would build these units in sizes up to 15,000-ton lifting capacity, wide and long enough to accommodate large auxiliary ships. Precast, prestressed and ordinary reinforced concretes are all being considered. Admiral Jelley said that Navy civil engineers are interested in new concrete drydock designs because of their proven durability as well as their economy. One World War II dock was deployed at Bikini during atom bomb tests there. Results, the admiral said, were very satisfactory.

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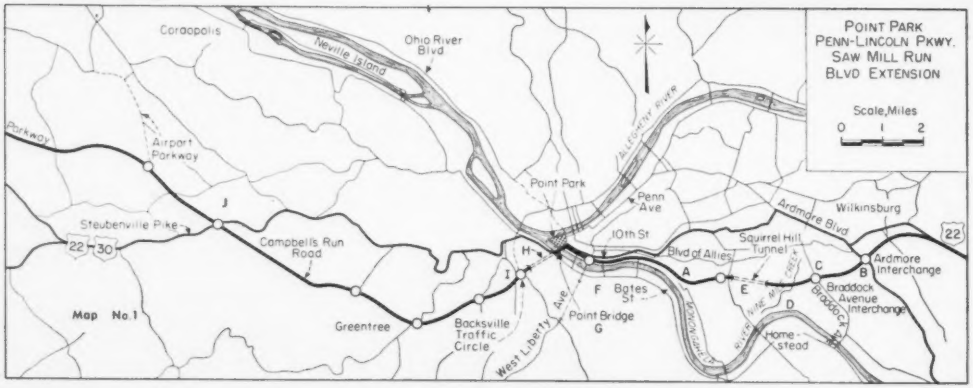


Pittsburgh pushes $150-million plan for highway and bridge construction

Pittsburgh is up to its ears in the biggest and costliest highway and bridge construction program in the city's history.

Dreams and plans of only a few years ago have developed into a $150,000,000-program. Bulldozers, fleets of earth-carrying trucks and giant concrete pavers are laboring to create a network of modern expressways and roads.

The overall purpose is to unsnarl the steel city's traffic snarl and provide speedy access downtown for commuters and a quick route through the city for travelers.

Most spectacular project is the 27-mile Penn-Lincoln Parkway. Its general purpose is to carry Routes 22 and 30 into and through downtown Pittsburgh. (See Map 1.) This state highway department project will cost more than $100 million. In addition to state funds, which are matched dollar for dollar by the federal government, Allegheny County (Pittsburgh) is contributing $5 million and the city is kicking in $1 million.

In the east, the parkway is wholly under construction from Churchill Borough, on Route 22 to Bates Street and Second Avenue in the city proper—a distance of about nine miles. (See A, Map 1) Construction contracts totaling almost $35 million already have been awarded by the state highway department on the Eastern Parkway.

A stretch of the Parkway East between Churchill and Forest Hills is open to westbound traffic, enabling trucks to by-pass a steep hill on Route 22 in Wilkinsburg.

The highway department is rushing to complete an interchange on Route 30 (Ardmore Boulevard interchange) (B, Map 1) so that east bound traffic lanes can be opened to Route 22. All main line paving is complete on this section and with a few more weeks of good weather, will be completed.

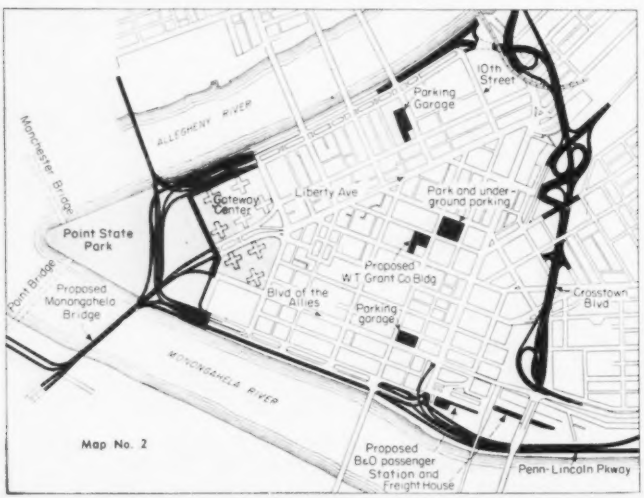
Before the end of 1952, contractors will finish the stretch between Ardmore Boulevard and the Braddock Avenue Interchange. (C, Map 1) The Commercial Street Bridge over Nine Mile Run is finished (D, Map 1) and the Squirrel Hill Tunnel (E, Map 1) is complete except for paving, and the installations of the ventilation system. All that work is going ahead on schedule.

Rough grading is about 60 percent complete from Forward Avenue (the western plaza of the tunnel) to Bates Street. The big six lane, 1100-ft Junction Hollow Bridge is finished.

By the time the Squirrel Hill Tunnel is opened to traffic, the parkway east from Churchill Borough to Bates Street will be completed.

But this big problem confronts officials.

How much of the completed Parkway East can be thrown open to



traffic without creating chaos on the existing street system?

To find an answer, Mayor David L. Lawrence appointed a Mayor's Committee on Traffic Flow. Important arteries like the Boulevard of the Allies from Brady Street to Grant Street, part of Forbes Street and Second Avenue, and the 22nd Street bridge will be restricted to traffic for parts of the time that the parkway is being constructed in the downtown area.

The mayor's committee has three problems to study:

1. How much of the Parkway East shall be opened before the downtown section is ready?

2. What are the best detour routes available when the important traffic arteries are restricted in use?

3. Development of a practical construction schedule which will disrupt traffic flow as little as possible.

The state highway department has allocated $13,500,000 for construction of the Eastern Parkway from Bates Street to 10th Street (F, Map 1) during 1952. The U. S. Public Roads Administration has approved the allocation.

The remainder of the downtown section from 10th St., to Point Park, including a new double-deck Point Bridge, now is in the design stage. Final engineering plans are being drawn.

That much of the Penn Lincoln Highway brings traffic from the east to the heart of Pittsburgh.

In September of last year, the West End Bypass (or Saw Mill Run Boulevard Extension) was opened to traffic. This bypass is an important link in the Penn-Lincoln Parkway. It is a limited access highway, with access and egress at only West Carson Street and the Banksville Traffic Circle. It by-passes the heavily congested West End part of Pittsburgh. It will connect directly with the Penn-Lincoln Parkway West and will continue to be a vital link in the Parkway System until another set of projected tunnels are built under Mt. Washington (H, Map 1)

The ultimate aim of these projected tunnels, which will resemble the Liberty Tubes, is to lead from the new Point Bridge under Mt. Washington to the Banksville Traffic Circle. (I, Map 1) A glance at the map shows how traffic, for lack of the tunnels, will have to detour around Mt. Washington by way of the West End Bypass.

Since construction costs now are rising and tunnels are costly, these new tubes probably are years away. The cost of the Squirrel Hill tunnel —which is 4,225 ft—will be more than

(Continued on next page)

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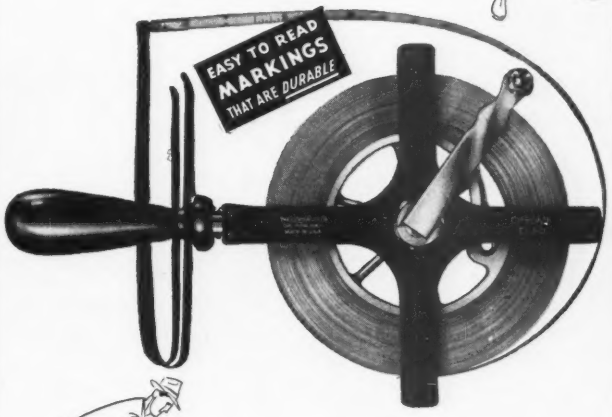

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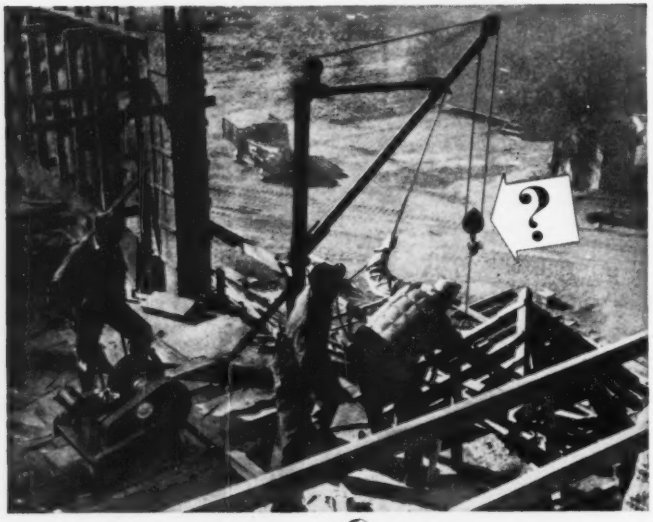

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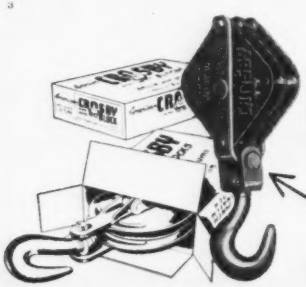

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$20,000,000. In comparison, the Liberty Tubes through Mt. Washington are 6,000 ft long.

All of the Parkway West, the nine and one half miles from the Banksville Traffic Circle to the Airport Parkway (J, Map 1) at the junction of Campbell's Run Road and Steubenville Road is under construction and scheduled for completion late this year. Six interchanges will link existing streets and highways to the Parkway West at Banksville Circle, in Greentree, Carnegie, Rosslyn Farms, Collier Township and Steubenville Pike.

The Parkway West will reduce traveling time from downtown Pittsburgh to the new Greater Pittsburgh Airport from 45 or 50 minutes to less than 20. It also will make the new airport one of the most accessible of any in the country.

The previously-mentioned Airport Parkway is an access road leading directly to the airport's terminal building. Two and one half miles of the Airport Parkway will be part of the Parkway West. Allegheny County has finished five miles of the express highway construction.

But the Penn Lincoln Parkway is only a part of the master traffic plan. A loop around the city of Pittsburgh, new bridges and outlying highway projects all form a part of the whole.

Map 2 shows that downtown Pittsburgh lies in a triangle formed by the Monongahela and Allegheny rivers on two of the Triangle's three sides. Fast traffic arteries have been constructed on each river bank. Now the plan is to add to their effectiveness by building a cross-town boulevard which will complete the triangle. This Crosstown Boulevard would be a high-speed roadway running from the Liberty Bridge to Bigelow Boulevard. Eventually it would be extended to make a connection with the Northside High Level Bridge. The two new double deck bridges to be erected at the Point (confluence of the Allegheny and Monongahela rivers) will make the loop plan greatly effective when all interchanges are completed.

New bridges are important, too. Last year Allegheny County completed and opened the Dravosburg and Rankin bridges at a cost of $8,500,000 each. The State Highways Department is finishing the Elizabeth Bridge on Route 51. A new bridge on the Allegheny River between New Kensington and Tarentum will be ready early this year.

• **High-Priority Projects**—1. **Etna-Sharpsburg Bypass**—With the opening of the Allegheny Valley Interchange

on the Turnpike, an avalanche of traffic hit route #28. Plans for the relocation of routes #8 and #28 from Blawnox Borough to Etna Borough are in design and scheduled for completion in 1952.

2. **Ohio River Boulevard Extension**—Surveys for the boulevard's extension from the North Side into downtown Pittsburgh are being made. This project is tied in with plans for the new Manchester bridge in Point Park.

3. **McKnight Road Extension**—This 3-mile project is in the 1951-52 Federal aid program and final engineering plans are substantially completed. Mapped by the State Highway Department, it will begin at the present terminus of McKnight Road and extend to route #19, thus eliminating an obsolete, winding roadway through North Park. It will benefit immensely the growing North Pittsburgh area and provide easy access from the Turnpike's Perry Highway Interchange at Warrendale to the North Side and the Triangle.

• **Outlying Highway Projects**—Millions of dollars are going for major highway improvements around the perimeter of Pittsburgh. 1 **Route #19**—The Perry Highway is being widened from Warrendale to Zelienople and is largely finished,—a boon to weak-end-minded Pittsburghers who enjoy the vacationland in the northern part of Pennsylvania.

2. **Route #22**—A new 9½-mile stretch of four-lane road has recently been opened on the William Penn Highway from New Alexandria to Blairsville. Plans to widen the William Penn highway from Monroeville—Pittsburgh Interchange on the Turnpike's western extension to the beginning of the Parkway East in Churchill Borough—are being developed.

3. **Route #30**—Major improvement on the Lincoln Highway between Greensburg and Ligonier. This is a 5½-mile stretch from Greensburg east. The highway department plans to make the Lincoln Highway a 4-lane road between Pittsburgh and Ligonier.

Nashville to vote on disposal plant

Preliminary construction of an $11 million sewage disposal plant and collection facilities is expected to start later this year.

The project has been under consideration for several years and is now classified "imperative." The city is under pressure from state stream pollution control authorities to build and face higher construction costs by building of a huge power and flood control dam on the Cumberland River.

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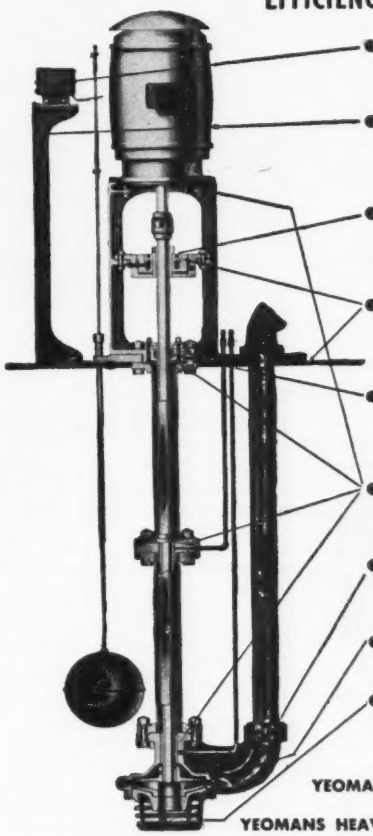

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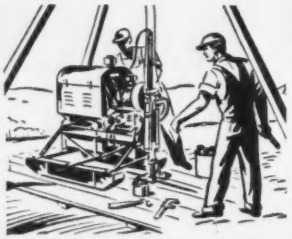

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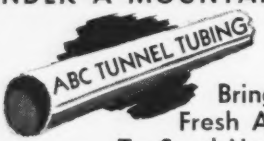

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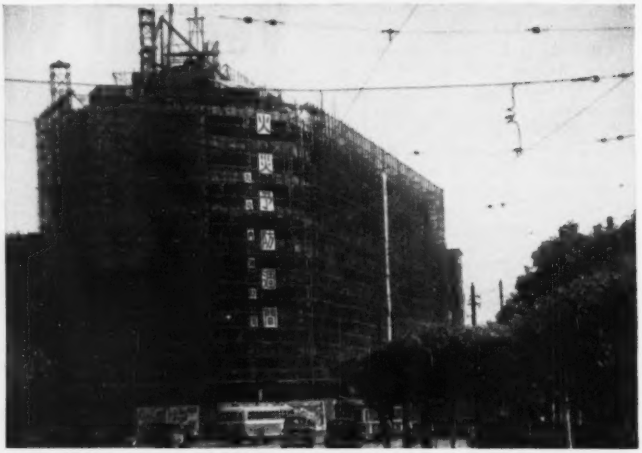

INTERNATIONAL OFFICE BUILDING—This structure in the heart of downtown Tokyo is nearing completion. It is typical of the new construction in the capital.—(Wide World photo)

America's wartime foes rebuild

Germany (West) and Japan, now getting along amiably with Uncle Sam, are having a building boom.

This began after World War II, in so far as the means allowed. It has been gathering momentum, and the faces of the two countries are changing. Where once there was only rubble from devastating Allied air raids in both countries, many fine new buildings now stand.

In Germany, American-type "skyscrapers" are rearing their heads high above Germany's traditionally low skylines. In bomb-scarred Frankfurt, for example, four buildings of more than eight floors have been constructed within the last two years, and more are planned.

These buildings are far short of "skyscrapers" by U. S. standards, but they rate high enough in Germany to be called "Hochhaus" (high building). Few of Frankfurt's old buildings exceed four stories, even in the main downtown section.

The style of German architecture also has undergone a radical change as German cities begin replacing the sturdy old stone structures leveled by bombs. Germans are now erecting trim white buildings of steel and cement with lots of big windows.

Buildings now being built in Germany are in contrast to traditional German business buildings, thick-walled, of stone or brick with small windows, narrow corridors and steep stairways inside and looking heavy with ornamentation, turrets and chimneys on the outside.

In Japan, the trend is also modern, with much American influence. Low cost housing projects are going up to shelter the teeming population of Tokyo and other cities.

(*Continued on page 50*)

FINANCED BY ECA FUNDS—This new building which is being constructed in what was formerly a fashionable section of Berlin was financed entirely by funds received from the Economic Cooperation Commission.—Wide World Photo.

Now—revised and enlarged

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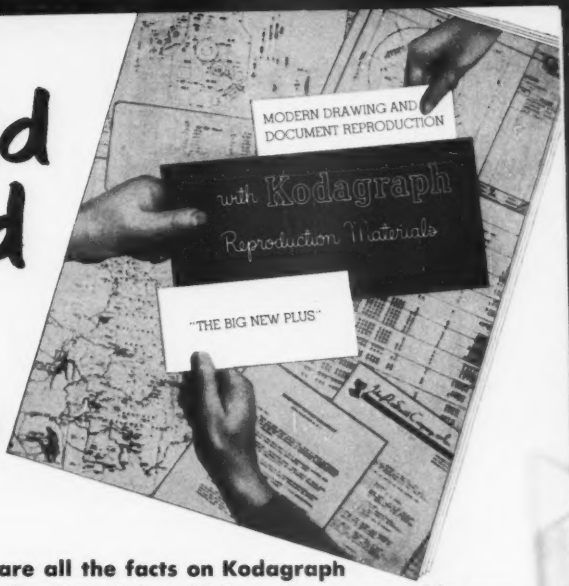

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International . . .

• **Housing construction**—In Marshall Plan countries the construction of houses has increased about 75 percent in the last three years. About 860,000 housing units were built in 1950, compared with 480,000 in 1947.

In Germany at least 500,000 dwellings were built or restored during 1949 and 1950. Through August of that year about $56 million in counter-part funds had been devoted to housing. One counterpart project initiated by the trade unions of Schleswig-Holstein provided 10,000 housing units in 19 cities and towns in that northern section of West Germany.

In 1951, seeking better designs and lower costs, ECA financed an architect-builder competition which will result in 3,500 new units in 15 German cities. In the Ruhr and North Rhine-Westphalia cities another counterpart fund project will provide 4,500 units.

Part of the materials for Europe's new or rebuilt dwellings has come from more than $120 million worth of timber and some $700 million worth of non-ferrous metals which ECA has authorized for European recovery since the start of the program.

• **German bridge construction**—During the last war more than 8,000 road and river bridges were demolished in West Germany. Almost half of these have been reconstructed, including 23 of the 46 destroyed Rhine bridges. German firms have supervised the work.

International briefs

• **Help to Turkey**—Mutual Security Agency announced on Jan. 12 the release of $58¼ million counterpart funds to Turkey for military activities including the building of camps and air bases. This brings to $136,353,932 the total of Turkish counterpart funds committed for expenditure since the Marshall Plan went into operation in 1948.

• **Philippine works**—The Philippine Bureau of Public Works is seeking congressional enactment for a $74-million program for the 1952 fiscal year. About half of this is earmarked for the construction, completion, or repair and improvement of national and provincial roads and bridges. One-sixth is for irrigation, and the remainder for water supply, sewerage, artisian wells, flood control, public buildings, national parks, harbor works, and radio and telegraph projects . . . Bids are to be asked soon for a $500,000 overpass bridge to cross the Manila R. R. bridge over the San Pedro River in Laguna province.

HEADS NEW CHAPTER—L. T. Summer has been elected president of a newly-organized Memphis, Tenn., chapter of the Mid-South section of the American Society of Civil Engineers. The chapter includes 109 members of the ASCE living in Shelby County, Tenn., and nearby counties in Arkansas, West Tennessee and Mississippi.

New head at Illinois Tech

John T. Rettaliata, 40, dean of engineering and vice-president in charge of academic affairs at Illinois Institute of Technology, Chicago, was appointed president of the institute on Jan. 28 to succeed Henry T. Heald. He assumed his new office on Feb. 4.

W. R. Engstrom, a vice-president of The Austin Co., has been appointed manager of the Pacific Northwest district for the firm at Seattle, Wash. He succeeds **Richard Ellis,** also a vice-president, who will continue as a consultant of the company in the Pacific Northwest. Engstrom was district manager at Seattle in 1933 and general project manager for a $75,000,000 Navy construction contract in Oregon and Washington between 1940 and 1944. He is a graduate of the University of Washington with a civil engineering degree.

David J. Guy has been elected executive vice-president of the American Watershed Council, Inc. He will be responsible for development of the council's program of flood control and water and soil conservation research. He is a C. E. graduate of M.I.T. He worked with the Geological Survey on

(*Continued on next page*)

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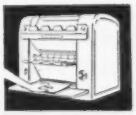

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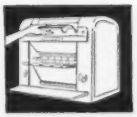

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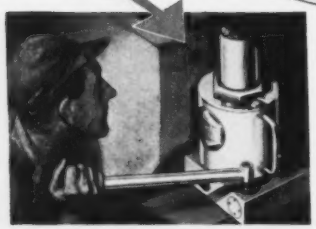

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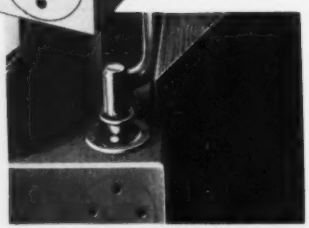

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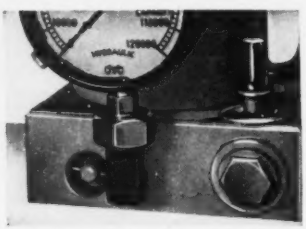

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water power investigations and land classification, and with FPC on hydroelectric power investigations.

William G. Perry has resigned from the partnership of J. E. Sirrine Co., Greenville, S. C., because of ill health. He joined the firm in 1920 and became a partner in 1937. He had been in charge of civil engineering, field work and field surveys.

Twenty-one years of service with the Army Engineers without taking a day's sick leave or suffering a lost-time injury is the record of **Arlin O. Graham,** a construction engineer assigned to the Omaha District area office in Nebraska City. He began at Kansas City, where he was inspector of river and harbor construction and has been assistant to the area engineer since 1942.

City Manager E. J. Allison of Salina, Kan., has resigned to accept a similar position at Ogden, Utah, which is switching from commission to council-manager form of government. He assumed his new post February 4.

Correction—In the caption of the picture (ENR, Jan 17 p. 67) of Seth E. Giem, chairman of the advisory council of the Memphis chapter of AGC and George Wible, the new president, Mr. Wible was incorrectly designated as Parker Johnston.

TRAFFIC ENGINEER—Mark G. Garver began his duties Jan. 23 as traffic engineer and executive secretary to the mayor at Little Rock, Ark. He is a civil engineer graduate of the University of Missouri. Until recently he was resident manager of the J. E. Greiner Co. at Houston, Tex., and at that time he participated in traffic surveys for the Arkansas Highway commission at Pine Bluff and West Memphis.

Longer wear-life is another *extra* designed into every Fuller Heavy-Duty Transmission.

These gears pictured here, for example, were taken from a Fuller 5-A-920 which logged 750,000 miles . . . 30 times around the world . . . WITHOUT OVERHAUL.

That's why owner Stan Iskra, of Bellevue, Ohio, says:

"After seeing all of the mileage which I have gotten out of this transmission, I wouldn't think of buying another truck that did not have a Fuller Transmission."

This particular tractor was in service hauling steel from Pittsburgh to Detroit and nearby points, part of the time pulling a double-dolly train. But its *longer* wear-life record could have been posted in any kind of heavy-duty hauling—off-highway or on—because there is a Fuller Transmission to match every "road and load condition." More than 101 models, in fact.

Choose a Fuller Transmission or Auxiliary for your rig. You'll find, like Stan Iskra, that it pays in more tonnage hauled at the end of the year for far less, particularly in maintenance.

Unretouched photographs above show the original gears, just as they came out of Stan Iskra's 5-A-920 Fuller Transmission, after millions upon millions of punishing contacts.

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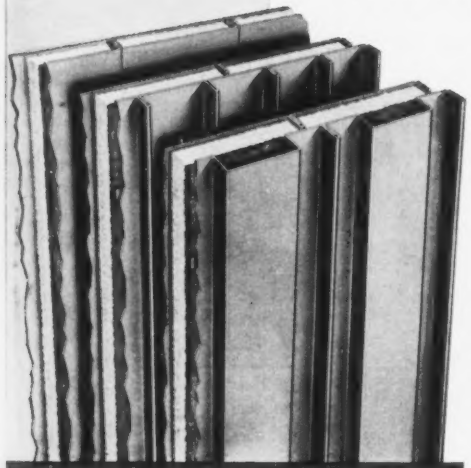

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The trend in modern building is to this permanent, economical, quickly erected wall construction. In the past ten years Mahon Insulated Metal Walls have been employed in the construction of every conceivable type of building up to and including great power houses and complete industrial plants like the one illustrated below, in which 127,600 sq. ft. of exterior wall surface and all coping, flashing, etc., are aluminum. Mahon Insulated Metal Walls are available in two "Field Constructed" types, and in two types of "Prefabricated Panels", flush, ribbed, or fluted exterior. Walls of the "Field Constructed" type may be erected up to fifty feet in height without horizontal joints—a feature of Mahon walls which is particularly desirable in power house construction where high expanses of unbroken wall surface are often unavoidable. Mahon Prefabricated Insulated Metal Wall Panels, ready for rapid erection in the field, can be furnished in any length up to thirty feet. All Mahon wall plates and panels are one foot wide. These Mahon Insulated Metal Walls, together with a Mahon Steel Deck Roof, provide the ultimate in economy, permanence, and fire-safety in modern construction. See Sweet's Files for complete information including Specifications, or write for Catalog No. B-52-B.

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ARBA to keep the public informed as to nation's growing road needs

U. S. highway builders aren't going to pause in their drive for public—and governmental—consciousness of the need for highways, and the danger of allowing the nation's road network to fall back into obsolescence.

That was a clear, hard determination that dominated every session of the American Road Builders' Association, holding its golden anniversary meeting at Houston, Texas.

Speaker after speaker — backed solidly in open meetings by the 900 delegates, and in impromptu corridor sessions—hit the same theme:

Highways are one of the important keys to defense—essential for transport of materials and products, essential (if that day should ever come) for the transport of troops and materials of war. The U. S. highway system suffered a severe setback in the years of World War II, highway builders even yet have succeeded in only denting the enormous amount of work that must be done to make the road network serve current needs properly—there must be no retrogression in this work.

PAUL REINHOLD, re-elected president

• **Backing it up**—The delegates backed up their convictions with a series of resolutions which:

• Supported Senate Bill 2436 (now pending before Congress) providing for continuation of federal aid for highway development;

• Supported efforts of their claimant agency, the Bureau of Public Roads, in its efforts to gain National Production Authority acceptance of highways as an industrial facility;

• Urged allocation of "reasonable amounts" of steel to support essential highway activity, which they estimated should total not less than 500,000 tons per quarter, with proportionate amounts of structurals included.

Contentions of need for such steps were borne out in figures submitted by the BPR, which said improvements are needed on 72% of federal-aid primary highways, 62% on secondary and 62% on urban roads. Total cost of such improvements was estimated at $29 billion.

• **Government contracts**—In another action, the delegates took strong exception to a recent U. S. Supreme Court ruling (ENR Dec. 6, 1951, p. 25) which in effect named the government's contracting officer as the final judge of fact and law in a contract.

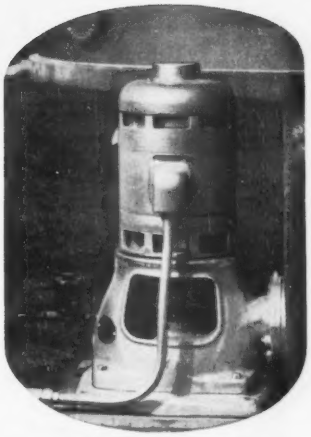
The group tentatively selected Boston as site of their 1953 meeting.

M. S. Hoffman, commissioner of highways in Minnesota, was elected vice-president from the central district.

Highway plans, technics to be discussed

Highway plans and techniques will hold the attention of engineers and manufacturers of equipment at the first Georgia Highway Conference to be held at Georgia Tech, Atlanta, Ga., April 2, 3, 4. The conference will be primarily for members of state highway departments, Federal highway agencies and related organizations. Contractors, engineers and equipment manufacturers will discuss new problems in highway construction in all phases, according to Prof. Robert E. Stiemke, head of the civil engineering department of Georgia Tech.

John D. McNamara has been elected president of District 1 Chapter, State Association of Highway Engineers, Albany, N. Y. Other officers elected at a meeting are: vice president, James Parker; secretary-treasurer, Howard Green; state director, Edward McDonough; alternate, William Wolf, and local director, William Falle.



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When a big Petroleum Refinery and a major Pipeline Corporation needed a thoroughly dependable supply of low cost water they promptly ordered the installation of Layne wells and pumps. Their selection was based upon the proven efficiency, ruggedness of construction and the extra years of good service they could expect from Layne well water supply units. Very wisely they invested for the future.

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IF insurance was a package sold over the counter, we'd describe our product like this:

Step right up mister . . . try an American Mutual policy on for size! See if it doesn't fit your company's needs better than anything on the market today!

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Included *at no extra price* with each industrial policy is a special safety engineering service that will help you reduce costly accidents . . . eliminate hazards and in many cases slash the cost of insurance premiums year after year!

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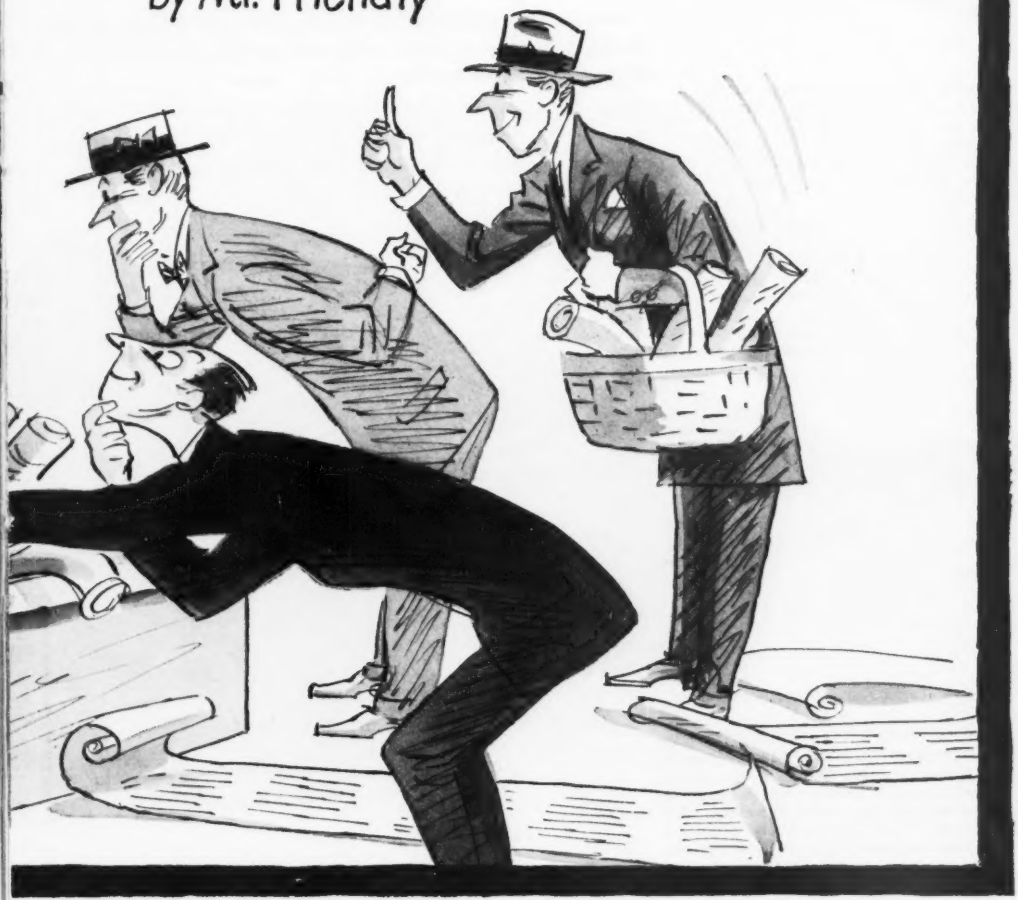
Some businessmen find them as beautiful as a fistful of crisp thousand-dollar bills!

# of Beautiful Insurance?

by Mr. Friendly



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Without obligation, please *rush* to me information on *The All-American Plan* so that I may be richer and happier!

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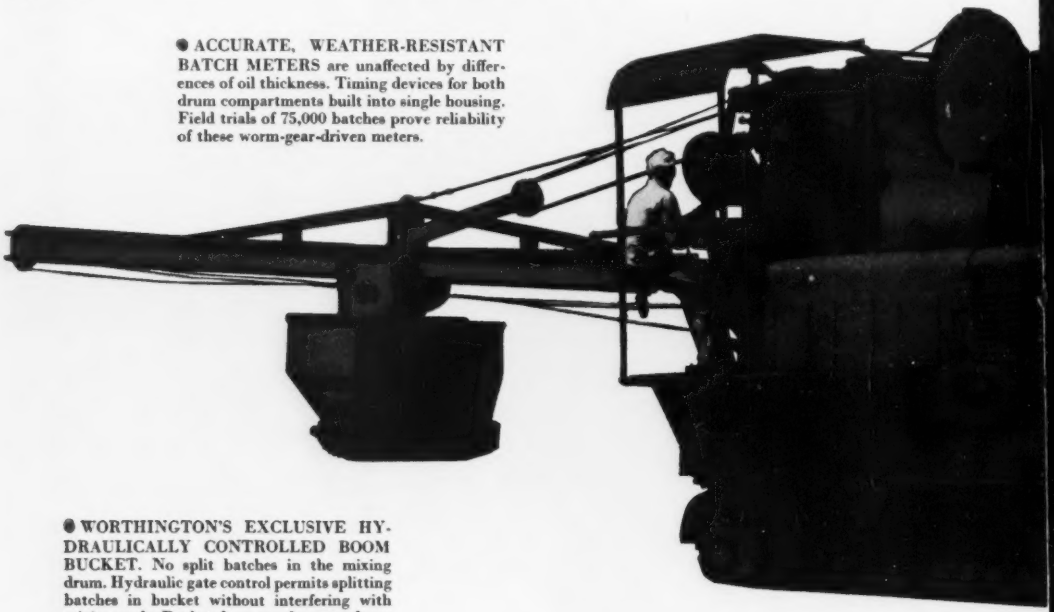
NEW! WORTHINGTON—built to help you

It had to be built! Today's tight schedules and rigid specifications demand a new, better paver that can do a high-speed job without sacrifice in quality.

And it had to be built by Worthington-Ransome! It took 40 years of Worthington-Ransome paver experience and the unmatched facilities of their integrated engineering staff to make possible this new paver.

● INSTANT, POSITIVE RESPONSE WITH SMOOTH, EFFORTLESS CONTROL. Transfer and discharge chutes, water valves, boom swing, bucket travel and controllable bucket discharge, all easily operated with hydraulic control levers conveniently placed for rapid action.

● ACCURATE, WEATHER-RESISTANT BATCH METERS are unaffected by differences of oil thickness. Timing devices for both drum compartments built into single housing. Field trials of 75,000 batches prove reliability of these worm-gear-driven meters.



● WORTHINGTON'S EXCLUSIVE HYDRAULICALLY CONTROLLED BOOM BUCKET. No split batches in the mixing drum. Hydraulic gate control permits splitting batches in bucket without interfering with mixing cycle. Bucket doors can be opened any distance required to regulate flow of concrete. Concrete can be spread across runways up to 25 ft wide while paver operates outside forms.

● RUGGED, RESPONSIVE BOOM-SWING MECHANISM. Mechanism is hydraulically controlled, piston operated, bull-wheel type. Hydraulic cushioning prevents bent booms. No worm gears to break.

● FAST, POSITIVE BOOM RAISING AND LOWERING. Worm-drive mechanism fully enclosed and running in oil; operates only when booming up and booming down.

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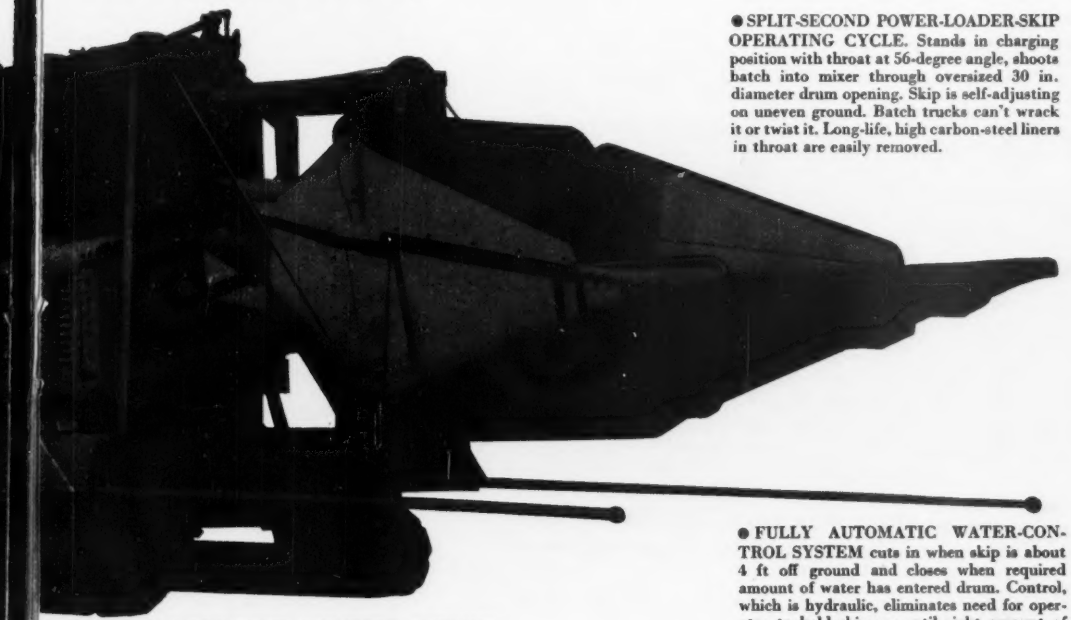
RANSOME PAVER

set paving records

Check these features of this newest paver and see for yourself.

- Power loader skip takes only 6½ seconds from ground to discharge position of 56° on low slope
- Transfer from first compartment to second compartment approximately 6½ seconds, depending upon concrete consistency
- Discharge into boom bucket approximately 6½ seconds, depending on concrete consistency
- Boom bucket travel speed—256 ft per minute
- Hydraulically-controlled boom swing of 171°
- Can swing and spread simultaneously



● SPLIT-SECOND POWER-LOADER-SKIP OPERATING CYCLE. Stands in charging position with throat at 56-degree angle, shoots batch into mixer through oversized 30 in. diameter drum opening. Skip is self-adjusting on uneven ground. Batch trucks can't wrack it or twist it. Long-life, high carbon-steel liners in throat are easily removed.

● FULLY AUTOMATIC WATER-CONTROL SYSTEM cuts in when skip is about 4 ft off ground and closes when required amount of water has entered drum. Control, which is hydraulic, eliminates need for operator to hold skip up until right amount of water is discharged by using an adjustable automatic water cut-off delaying action.

● EFFICIENT, LOW-SPEED, OVERSIZE DIESEL. Cummins HBID-600. Engine speed only 1300 RPM. Experience has shown that this kind of power unit performs better, lasts longer, and costs less to run. Main power take-off speed-reduction unit has cut tooth, helical gears; sealed, self-aligning anti-friction bearings. Sealed, triple-width roller-chain coupling between speed-reduction unit and countershaft.

Get the complete story of this new Worthington-Ransome WP Paver through your Worthington Blue Brute Distributor or by writing direct to Worthington Pump and Machinery Corporation, Construction Equipment Division, Dunellen, N. J.

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RED-STRAND
WIRE ROPE

Its fitness for tough work has been proved by many years of actual on-the-job performance. Strength, toughness, flexibility, and durability . . . *in correct balance* . . . provide safe, dependable, and economical wire rope service.

"HERCULES" (Red-Strand) Wire Rope was originated by Leschen in 1886 to meet the rope requirements of bigger, better material handling equipment—and tough jobs have been its proving grounds ever since.

Let the Red-Strand be *your* wire rope guide. You will find its reputation justly earned.

Round Strand or Flattened Strand—Preformed or Non-Preformed—Wire Rope Core or Fiber Core. Let us help you select the *right* rope for your job.

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OBITUARIES

Soren A. Thoresen, tunnel expert, dies

Soren A. Thoresen, 74 one of the foremost authorities on the design and construction of vehicle tunnels, died at his home on Staten Island, New York, on Jan. 25. At the time of his retirement from active practice in 1947, Mr. Thoresen was a partner in the New York consulting firm of Parsons, Brinckerhoff, Hall & Macdonald.

Born in Norway, and an electrical engineering graduate of Mittweida College in Saony, Mr. Thoresen came to this country in 1903. Two years later he became a draftsman in the office of William Barclay Parsons, consulting engineer, New York, who was then actively engaged in subway work. In 1920 Mr. Thoresen became engineer of design for the Parsons firm.

During the following years, Mr. Thoresen participated in the design and construction of the Detroit-Windsor tunnel under the Detroit River and the vehicle and pedestrian tunnels under the Schelde River at Antwerp in Belgium. He also acted as consultant on the Maas River tunnel at Rotterdam, Holland. He participated in design studies for the vehicle tunnel now being built under the Houston Ship Canal, for a tunnel to connect Norfolk and Portsmouth, Va., and one to connect San Diego and Coronado, Calif.

Robert W. Clark, 63, city engineer of Meriden, Conn., died Jan. 15. A graduate of Cornell University, he had previously been business manager of the state highway department.

Charles C. Haas, 60, a building contractor in Jamestown, N. Y., for many years, died Jan. 14. In his experience of nearly 50 years, he helped construct 400 or more buildings in the Jamestown area.

George J. Goehl, 79, retired federal highway engineer, died in Watertown, N. Y., Jan. 16. He joined the New York State department of public works in 1904 and assisted in construction of a number of early state highways. In 1917 he became a highway engineer in the U. S. Bureau of Public Works.

Kenneth Kinkley, 55, Coshocton County, Ohio, engineer, died Jan. 15 in Columbus. He had been with the county for 15 years.

(*Continued on page 63*)

Choose the Right final drive to fit your Specific Job!

Go Modern with

TIMKEN *Detroit* AXLES

A PRODUCT OF THE TIMKEN-DETROIT AXLE COMPANY

DETROIT 32, MICHIGAN

The Accepted D A Co Standard

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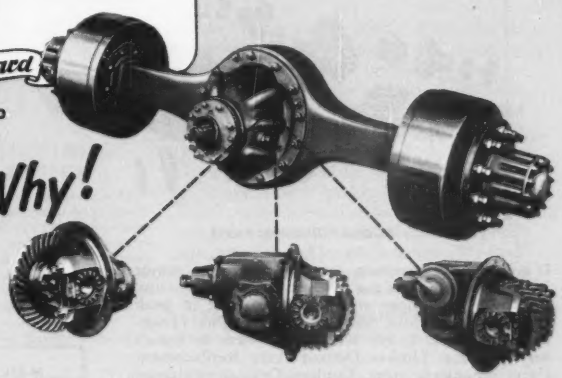

Here's One More Reason Why!

TIMKEN-DETROIT "3 FOR 1" AXLES

Don't compromise! Gear your truck to do a specific job—the one you specialize in! Standardize on trucks equipped with Timken-Detroit "3 for 1" Axles and choose the axle capacity and final drive that fit your needs exactly!

Only Timken-Detroit offers all three types of final drives—single-reduction, double-reduction and two-speed double-reduction—each with Hypoid gearing and in a complete range of capacities. What's more, *all three* types of final drives are interchangeable in the same axle housing, using the *same* axle shafts. Given the specifications for the job to be done, the correct final drive can easily be supplied for any axle capacity.

The next time you buy trucks specify Timken-Detroit "3 for 1" Axles!

WORLD'S LARGEST MANUFACTURER OF AXLES FOR TRUCKS, BUSES AND TRAILERS

PLANTS AT: Detroit and Jackson, Mich. • Oshkosh, Wis. • Utica, N. Y. • Ashtabula, Canton and Newark, Ohio • New Castle, Pa.

BEST Trucks begin with Them!
BEST Truckers replace with Them!

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Genuine
TIMKEN
Detroit
AXLE PARTS

The Accepted D A Co Standard
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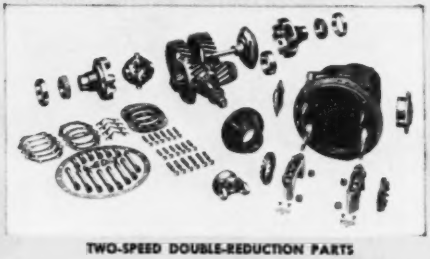
AXLE HOUSINGS, SHAFTS AND BRAKES

DOUBLE-REDUCTION PARTS

SINGLE-REDUCTION PARTS



TWO-SPEED DOUBLE-REDUCTION PARTS

It's just plain common sense to protect a major investment—such as the motor trucks you own and operate! The longer you can keep them in peak operating condition, the more your original investment pays off. That's why you'll want to install *only* genuine Timken-Detroit Axle Replacement Parts whenever your Timken-Detroit-equipped trucks need them.

Timken-Detroit Replacement Parts are *identical* in every respect with the original parts in your axles and brakes. This eliminates adjustments—means you can do an easier, more economical installation. What's more, many of these parts are "kit-packed" for added convenience and protection!

Remember! No other manufacturer can duplicate the Timken-Detroit quality and precision engineering you bought originally. So always look for the sign that reads "Genuine Timken-Detroit Axle Parts" whenever new axle and brake parts are needed.

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ADDRESS_____

CITY_____ STATE_____

I operate_____ (number of trucks.)

Obituaries . . .

Ross P. Johnston, 87 civil engineer, died Jan. 15 in Penfield, N. Y. He started his engineering career at the Mesabi iron range in Minnesota. Later he was associated with the Nickel Plate and the Chicago and Northwestern railroads as a construction engineer. In 1901 he returned East to become division manager at Corning for the New York Central System.

Harry J. Kelly, 62, recently manager of construction and maintenance for the Gulf Oil Corp., died at Pittsburgh, Jan. 21. He was a civil engineer graduate of Texas A&M.

J. C. Nelson, 67, a civil engineer graduate of the University of Alabama and former president and chairman of the board of the Easy Washing Machine Corp., died at Syracuse, N. Y., Jan. 22. From 1905 to 1907 he was an engineer with Ford, Bacon & Davis on street railway construction in Birmingham, Ala.

L. A. Callagan, 52, construction engineer, who had been in business in Washington, D. C., since 1929, died there Jan. 21. He worked on the construction of the Library of Congress Annex, the Jefferson Memorial, and the Supreme Court building.

Wm. E. Carigan, 75, an engineer with the Kentucky highway department for 30 years, died at Lexington, Ky., Jan. 19. He served six years as an engineer on the Panama Canal.

William Gorrill Swigert, 53, president of the Pacific Bridge Co. since 1938, died Jan. 16 in San Francisco. His firm, one of the largest and oldest heavy construction companies in the West, built the piers for the Golden Gate Bridge and drydocks for the Navy at Pearl Harbor, Hunters Point, Mare Island and San Diego. It raised the battleship Oklahoma after Pearl Harbor, and was one of the group which constructed Hoover Dam.

Morrison G. Cain, 65, of Kenmore, N. Y., chief engineer of the Dobbie Foundry & Machine Co., Niagara Falls, died Jan. 24 in Buffalo. He was graduated in 1911 from Clarkson Institute of Technology. Formerly he was engineer in charge of construction of Niagara Falls Municipal Airport.

Harry E. Bovay, 69, retired bridge builder, died at Memphis, Tenn., Jan. 26. He built bridges across the Mississippi River at Cairo, Ill., and Vicksburg, Miss. He spent 10 years in the Panama Canal Zone. He served there as secretary to Gen. Wm. C. Gorgas.

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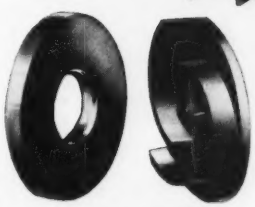

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Sturdy, wear-resistant replaceable liners and impellers are standard equipment in all Carver Contractor Pumps. When wear eventually occurs you don't replace the entire costly casing, as in ordinary pumps. Simply remove and install a new liner, a new impeller if necessary, and new pump efficiency is restored at nominal cost.

Another Carver Quality Feature!

Quality is our strong forte — Every Carver Contractor Pump is designed and manufactured with one specific purpose in mind — to provide you with rugged dependable equipment, loaded with reserve power and stamina, to handle the toughest construction jobs. Nothing fragile about these pumps; no skimping on materials; no underpowering; no compromise of quality. Throughout their many years Carver pumps have earned an enviable reputation in the field for dependable, efficient and long-life service. We shall continue to build pumps that will perpetuate this reputation.

Specify Carver Contractor Pumps — your best buy for better performance.

CARVER
PUMPS

NEW LINCOLN PLANT CREATED BY INCENTIVE-INSPIRED CO-ACTION IN DEVELOPING POSSIBILITIES IN PRODUCT

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WELDED FRAME DESIGN CUTS STEEL TONNAGE 15%

THROUGH welded structural design, it has been possible to save 15% on steel in the framework for J. W. Robinson's new department store in Los Angeles. The most recent department store in Southern California, this 1700 ton frame is almost entirely field welded.

The relationship of the columns and girders provides both vertical and horizontal continuity with a minimum of welding. The horizontal continuity reduces the deflection of the 32 ft. beam and girder spans to approximately 25% of what it would have been if they had been simply supported.

All girders are continuous through the column lines—the column rather than the girder being spliced at that point—and extend to a point approximately 6.5 ft. from the columns on both ends. This leaves a space in alternate spans of approximately 19 ft. between girder ends in which a suspended span is carried.

This design idea also allows any variations in gap to be compensated in the splice welds and so further simplify field welding.

Approximately 6" less height per story results from this welded frame design. Distances between ceiling of one floor and the floor level above are also considerably less than with other types of construction.

Fig. 3. Four Story Rigid Frame *for the J. W. Robinson department store in Los Angeles, California. Architects: Pereira and Luckman and Charles O. Matcham. Structural Designing and Detailing: Paul E. Jeffers and Robert E. Kinkead. Welded by Pacific Coast Steel Corporation. Steel Fabricators: Bethlehem Pacific*

Fig. 4. Continuous Girder *passing over column top is spliced at point of minimum stress.*

WELDED DESIGN ALWAYS SAVES STEEL AND LOWERS COST

Fig. 1. Typical Column Joint — *Develops continuity both vertically and horizontally. Vertical column continuities are shop welded to the continuous beam. Top plate, with slot to give extra weld area, develops continuity in transverse beams across column supports.*

Fig. 2. Detail of Girder *running through column. Column top and base are welded to beam flange. Vertical stiffeners provide continuity to column.*

HERE'S MORE PROOF

Studies in Structural Arc Welding free on request.

Designers and Engineers write on your letterhead to Dept. 131,

THE LINCOLN ELECTRIC COMPANY

CLEVELAND 17, OHIO

The World's Largest Manufacturer of Arc Welding Equipment

MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
March Materials, and Labor Prices will appear in March 6, 1952 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash. dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8 x 8 x 16-in.; truckload del.; per block		CONCRETE Ready Mixed 1:2:4, over, 50 c.y., del.
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand	grav.	Lt. wgt. agg.
Atlanta	$3.75	$3.45	3.25	$2.00	$2.00	$1.75	$2.10	$2.10	$1.65	$1.85	$0.191	$0.191	$11.50
Baltimore	3.71	3.40	3.35	2.50‡a	2.50‡a	2.00‡a	2.70‡a	2.80‡a	2.60‡a	2.55‡a	.17	.17a	10.80
Birmingham	3.11	2.68	2.82g	2.24n	2.24n	1.94n	2.50	2.50	1.10	1.30	.165	.165	7.85
Boston	4.01	3.69	3.81	2.50a	2.50a	2.50a	1.50a	1.60a	....	....	.206	.22a	11.50h
Chicago	3.29	2.99	3.94	3.00‡b	3.00‡b	3.40‡b	3.00‡b	3.00‡b	2.00‡	2.00‡	.22	.22b	12.00
Cincinnati	3.53	3.23	3.32	2.00‡e	2.00‡e	2.05‡e	2.35‡h	2.35‡h	....	....	.21	.225a	11.45f
Cleveland	N. A. in C. L.		....	2.05‡f	1.85‡	1.65	3.81a	3.81a	2.85‡	2.85‡	....	.23	13.00g
Dallas	2.95	2.65	2.70	2.18	2.28	1.84	2.22	2.38	....	....	.125e	.215	9.30
Denver	3.89	3.64	3.89	1.85	2.00	1.20	....	....	....	....	.22	.255a	10.50
Detroit	3.25f	2.98	3.04	4.25‡b	4.25‡b	3.75‡b	4.25‡	4.25‡	4.25‡	4.25‡	.19	.20a	10.30f
Kansas City	3.30	3.03	3.15	1.85‡	1.85‡	1.50a	2.00‡a	2.00‡a	....	....	.23ag	.23/24c	11.20b
Los Angeles	4.00a	3.60a	4.72	1.95a	2.20a	1.95a	2.08a	2.08a	....	....	.11/m	.22m	10.43/Am
Minneapolis	3.73d	3.42d	3.36	2.30‡ag	2.30‡ag	1.35‡ag	2.50‡ag	2.50‡ag	....	....	.23bk	....	11.75/i
Montreal	3.01ae	2.86ae	....	2.50	2.50	2.25	1.05ij	1.30ij	....	....	.20	.20n	10.40nk
New Orleans	3.20e	2.90e	3.18	2.32	2.32	1.82	....	....	1.05	1.25	.25	....	12.90
New York	3.81	3.50	3.40	2.35bk	2.35bk	1.60bk	2.50bl	2.50bl	....	....	....	....	11.55an
Philadelphia	3.38/3.68‡	3.07/3.37‡	3.38‡	2.65‡	2.75‡	2.15‡	2.10‡	2.15‡	1.75	1.65	.22/.25	....	11.50
Pittsburgh	3.32	3.04	3.32	2.15‡	2.15‡	2.10‡	2.60‡	2.60‡	2.15	2.15	.23d	.23d	11.00
St. Louis	3.22/3.43b	2.84/3.10b	3.05/3.22	2.90am	2.90am	2.30/2.70am	1.70j	1.70j	1.25	1.25	.215	.27en	10.40
San Francisco	3.35	2.95	....	1.92	1.92	2.02	2.02	2.02	....	....	....	.22el	10.30e
Seattle	3.80a	3.25a	4.50a	3.00‡bm	3.00‡bm	3.00‡bm	3.50‡bm	3.50‡bm	....	....	.24j	.3325f	10.95j

‡Delivered. * Prices incl. dealers comm. except as noted.
CEMENT: a Subj. to 10¢ dis. b Less 2% for cash. c CL price dealers' comm. not incl. d Dealers sell only LCL. e Plus switching charges. f Paying up to $3.80 for cement brought in from outside sources. g Warehouse pickup. h LCL.
SAND, GRAVEL, STONE & SLAG: a Truck lots. b Per cu. yd. c 5 tons or more. e ¼". f Pea gravel. g Less 5% for cash. h Less than 5 tons. i Sales tax incl. j F.o.b. quarry. k Barge lots add. l F.o.b. scow Hudson river. m Less 2% for cash. n F.o.b. cars.
CONCRETE BLOCK: a Cinder. b Waylite. c Haydite. d Celocrete. e 5‡ x 8 x 12 in. f 8 x 4 x 16. g F.o.b. truck at job. i Less 2% for cash. j Less 1% for cash. k 8x8x18. l F.o.b. plant San Rafael. m F.o.b. yard.
READY MIXED CONCRETE: a 5 cu. yds. or over del. Man. b 25 cu. yds. or more. c 10-100 cu. brackets. e 2,000 lb. concr. f 2500 lb. comp. g Aver. haul 7-9 mi. zone. h Less 50¢ for cash. i 5% off for cash. j 2% off for cash. k Sales tax included. l 1:2½:4. m F.o.b. yard. n Plus escalator clause.

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Charge for bags not included. For paper bags add 30¢ per bbl., not refundable

	Bulk		Bulk		Bulk		Bulk
Richard City, Tenn.	$2.60†	Buffington, Ind.	$2.55†	Steelton, Minn.	$2.65†	Muskegon, Mich.	$2.70†	Toledo, O.	$2.60†
Clinchfield, Ga.	2.60†	Independence, Kan.	2.50†	Leeds, Ala.	2.45†	Saginaw, Mich.	2.60†	Milwaukee, Wis.	2.75†
Kingsport, Tenn.	2.60†	Hannibal, Mo.	2.55†	Duluth, Minn.	2.65†	Wyandotte, Mich.	2.60†	Green Bay, Wis.	2.75†
West Des Moines, Iowa.	2.65†	Northampton, Pa.	2.60†	Hudson, N. Y.	2.60†	Buffalo, N. Y.	2.60†	Ironton, O.	2.60†
Nazareth, Pa.	2.60†	Universal, Pa.	2.65†	Alpena, Mich.	2.50†	Oswego, N. Y.	2.75†	Montreal City	2.61
Bath, Pa.	2.60†	Waco, Tex. (+ 10¢ tax)	2.50†	Detroit, Mich.	2.60†	Cleveland, O.	2.60†	W. Winfield, Pa.	2.65†

†*Prices to hold for first quarter of* 1952.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	PAVING ASPHALT Per ton, less than 80 penetration Tank car	Drums	ASPHALT BINDERS—FLUXES Per gal., 80-300 penetration Tank car	Drums	CUTBACK ASPHALT Per ton Tank car	Drums	ROAD OIL Per gal. Tank car	ASPHALT EMULSION (Quick-breaking) Per gal. Tank car	Drums
Atlanta	$73.00	$35.00	$2.25	$26.00	$32.25	$0.1975	$0.339	$0.095w	$0.185w	$0.105	$0.115	$0.225
Baltimore	150.00‡	57.70‡	.....	22.00	.....	.0809	0.15	.09w	.17w	.09a	.09	0.12
Birmingham	.....	45.50i	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	24.50a	35.50a	22.00ax	35.50ax	.....	.....	.09a	.105a	.22a
Chicago	155.00‡	90.00‡b	4.40/4.60‡f	20.25b	30.25b	19.25bv	29.25bv	.0875bw	.16bw	.075b	.....	.....
Cincinnati	.....	.....	.....	22.50B	.....	22.50Bc	.....	.10w	.....	.....	.....	.....
Cleveland	200.00	53.00d	4.12g	23.00A	.....	23.00A	.....	.1025Aw	.194w	.....	.11A	.19A
Dallas	e	40.00	e	24.05	43.09	.1016	.2103	27.09	47.87	.0980	.1041	.2128
Denver	.....	48.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	92.00	.....	26.82	.....	26.45v	.....	.117w	.....	.0925	.....	.279r
Kansas City	e	e	e	18.55ei	...	.....	.....	.0725w	.....	.0635e	.....	.....
Los Angeles	e	.....	e	15.50dmz	....	15.50dsz	....	17.00dz	.....	16.00du	.0825f	.1525f
Minneapolis	.....	.....	2.83h	23.90	....	22.90	.....	.0994w	...	.0894	.1035	.....
Montreal	.....	e	e	27.10n	36.65n	.135n	.183n	16.30nu	18.80nu	.132n	.187nu	.225nu
New Orleans	.....	.....	.....	17.50a	....o	17.50vo	.....o	.085ow	.....o	.0882	.086	.....
New York	.....	.....	3.12f	26.26q	47.59q	25.26st	46.58st	.1071w	.2021w	.1071	.1072	.1993
Philadelphia	175.00	110.00	4.06	22.00	.....	.....	.....	.095w	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	23.00	37.00	.10	.20	27.00	39.00	.095	.09	.205
St. Louis	.....	.....	.....	19.25f	.....	.1698	.....	.0865/.080w	.....	.15	.....	.....
San Francisco	.....	.....	.....	17.00q	32.50qp	17.00qkv	32.50qkv	19.00q	36.50q	17.50n	.085y	.....
Seattle	.....	.....	.....	17.00k	37.50k	16.25kv	.....	19.50k	.....	18.50kw	.095k	.105kr

‡ Delivered.
PAVING BRICK & BLOCK: a CL. b 3½ x 4 x 8½. c 2½ x 8½ x 4. d LCL, truck deliveries. e Not used. f 2" interior 6¢ treat. g 3". h 8¢ treat. i 3 x 3½ x 8½.
ASPHALTS: a Price at plant, Everett, Mass. b F.o.b. refinery, Lockport, Ill. c F.o.b. Sugar Creek, Mo. d F.o.b. refinery, El Segunda. e F.o.b. Baton Rouge. f F.o.b. Wood River or Roxana, Ill. g F.o.b. Richmond, Calif. h F.o.b. Martinez. i Bulk refinery. j F.o.b. refinery, Inglewood-Calif. k 50-110 penetr. l Less than 100 penetr. m 40-80 penetr. n Tax incl. o Drums not avail. p Shipped in steel bbl. q 40-85 penetr. r In customer's drums. s Shipped in drums, per drum. t 85-300 penetr. u Per 100 gal. v Per ton. w Per gal. x Also tank trucks. y F.o.b. Oakland. A F.o.b. refinery Cleveland. B *F.o.b. Latonia, Ky.*

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	Light	Re-rolled	TRACK SUPPLIES Angle Bars	Std Spikes	Tie Plates	Track Bolts
Birmingham Area	$3.65	$3.70	$3.70	$7.85	....	$72.00	$80.00	Not	$4.70	$6.15	$4.50	....
Chicago Area	3.65	3.70	3.70	7.85	$4.45	72.00	80.00	avail-	4.70	6.15	4.50	....
Pittsburgh Area	3.65	3.70	3.70	7.85	4.45	72.00	80.00	able	4.70	6.15	4.50	$9.85
Buffalo Area	3.70	3.70	3.70	7.75	4.45	72.00	80.00	....	4.70	6.15	4.50	9.85
Cleveland	....	....	3.70	7.85	....	.....	.....	....	....	....	....	9.85
Youngstown Area	....	....	3.70	....	....	.....	.....	....	....	6.15	....	....
Geneva	3.65	3.70	....	....	....	.....	.....	....	....	....	....	....
Los Angeles	....	4.40	....	....	....	.....	.....	....	....	6.15	....	....
Pueblo	3.65	3.70	3.70	....	....	72.00	80.00	....	4.70	6.15	4.50	9.85

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price a 5 tons to carload lot b New billet	Rail steel	Add'l for switch	$/cwt for Del.	EXPANDED METAL LATH k Per 100 sq. yd., carload lots Std. diamond mesh, 3.4 lb.	Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING d Per 100 sq. ft., carload lots 4x16 in., No. 5 & 10 wires	4x12 in., No. 8 & 12 wires	6x6 in., No. 6 & 6 wires
Atlanta	$6.80	$6.65	$6.65	$.025	$.10	$31.50	$31.50			
Baltimore	6.15	5.49l	....	....	.10	42.00	45.00			
Birmingham	5.70	5.75	5.75	.05	.15	47.00p	52.00p			
Boston	6.20nk	6.19ck	6.19ck	....	.15	40.50	44.50			
Chicago	5.70	4.95ff	4.95ff	.0625	....	34.50	38.50			
Cincinnati	6.24ak	5.84r	....	....	.15	38.50uzee	41.00uzee			
Cleveland	5.95	4.81v	....	....	.10	37.00‡	40.00‡			
Dallas	8.85	7.00	7.00	....	....	49.00	52.00			
Denver	7.20	7.10e	....	....	....	60.00s	72.00s			
Detroit	6.09	5.74n	....	....	.20	53.00	58.00			
Kansas City	6.30nn	5.90ff	....	....	....	39.50	41.50			
Los Angeles	6.41kk	6.21g	....	....	.15	48.00	54.00kk			
Minneapolis	6.15kk	7.12ll	7.12ll	....	.30	37.00	39.50			
Montreal	6.55kB/6.75A	4.75i	4.75g	....	....	44.10h	46.80h			
New Orleans	....	5.55ok	....	.05	.10	40.00	40.00			
New York	6.50r	6.25	6.25	....	.30	38.50ut	45.00ut			
Philadelphia	5.90	5.95	....	....	....	38.00‡	42.00‡			
Pittsburgh	5.40/5.60	5.40/5.60	....	....	.10	34.00	36.00			
St. Louis	6.03a	5.34c	5.34c	....	....	47.00aa	53.00ac			
San Francisco	7.15ii	6.50l	....	....	.15	40.50	43.50			
Seattle	4.30e	5.55al	....	....	....	87.00mmm	47.00mmmx			

A.P.M.* Joliet, Illinois, Donora, Penn., $2.66
F.o.b. Mill: Monessen, Penn., $2.76

A.P.M.* Joliet, Illinois, Donora, Penn., $1.87
F.o.b. Mill: Monessen, Penn., $1.93

A.P.M.* Joliet, Illinois, Donora, Penn., $2.79
F.o.b. Mill: Monessen, Penn., $2.89

* At Producing Mill.

‡ Delivered. b 1–5 tons, add 35¢. Less than 1 ton, add 50¢. c 20 tons or over base. d Mill price plus freight. e F.o.b. plant. f Includes delivery in free delivery zone. g 10,000 to 39,999 lbs. h List price. Dominion tax exempt. Provincial and Municipal tax extra. i Plus Dominion, Provincial and Municipal sales tax. j Price per ton. k F.o.b. city. l Intermediate and hard grade, new billet. m Per sq.yd. n 5–10 tons. o 5 to 20 tons base. p Del. of 500 sq. yd. or more, 4 in. ribbed, 4 lb. per sq. yd. r 5 tons or over. s LCL. t Asphalt coated. u Note: Revised size extra — 1 in., 1¼ in., 1½ in., 10¢. ¾ in., 15¢. ⅝ in., 25¢. ½ in., 50¢. ⅜ in. 80¢. ¼ in. $1.90. v 20 tons. Straight. w Copper bearing. x 2.5 lb. per sq. yd. y $0.0093 transportation tax included. z Copper alloy. aa Delivered truck to job. Contractor to do unloading. dd F.o.b. dock. ee F.o.b. cars. ff Carload lots. gg Including sales. hh 10,000–19,999 lbs. ii 400–999 lbs. kk 1" ribbed. ll 5 to 8 tons, f.o.b. city. mm 2% off for cash. nn 1–5 tons. pp 10 tons to CL. a 2000–9999 lbs A. Amer. struct'l shapes. B. Canadian shapes.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in.a	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13–44T std. 8 in. s.s.	std. 12 in. s.s.	24 in. ds.	36 in. ds.	CLAY DRAIN TILE ASTM C4–24 Per 1,000 ft., carload lots, f.o.b. 6 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14–41 12 in.	24 in.
Atlanta	$99.00	$0.43	$0.67	$3.39gg	$7.00gg	$114.00	$140.00	$0.45	$2.00
Baltimore	109.00	.539	1.0395	4.23A	11.275A	178.20	274.80	.90	2.45
Birmingham	93.00	.42	.75	2.99	....	210.00‡	375.00‡	1.25m	2.75m
Boston	113.00	.532uzz	1.08uzy	4.41uzy	11.685uzy	187.80v	289.20v	1.55mg	3.80mg
Chicago	107.00	.65	1.25	5.10	13.50	150.00‡	270.00‡	.80	2.80
Cincinnati	106.00	.567y	1.093y	4.32y	11.17y	164.40	254.10	.75m	2.80m
Cleveland	108.00	.462x	.89x	3.69x	10.045x	158.00m	245.65m	.75m	2.95m
Dallas	107.00	.430	.822	3.234b	9.17b	.....	.....	.49	1.60
Denver	115.00	.43dd	.74dd	3.18dd	....	.....	.....	.74m	2.50m
Detroit	108.00	.70	1.35	5.35	14.40	240.00m	360.00m	.80	3.20
Kansas City	106.00	.515	.92	3.64	....	216.70	.....	.70	3.00g
Los Angeles	122.00	.54f	1.07f	5.24f	13.06f	228.20f	348.90f	.85	2.40ff
Minneapolis*	112.00	.66mo	1.20mo	4.85mo	....	.....	.....	1.36k	3.87k
Montreal	100.00	.85z	1.50z	5.25z	....	.....	.....	106.50kaa	282.70kaa
New Orleans	101.50	.498	.935	5.03	....	229.70bb	402.00bb	.65	2.29
New York	111.00	.62	1.19	4.73	12.40	.....	.....	1.15	2.50
Philadelphia	110.00	.65	1.25	4.95A	12.65A	300.00‡	350.00‡	1.55h	3.75h
Pittsburgh	109.00	.406m	.772m	2.85m	7.652m	147.50	230.00	1.05h	3.50h
St. Louis	103.00	.51	.93	3.65	8.58	170.00	400.00	1.20dl	2.70hl
San Francisco	122.00	.61d	1.20d	5.03d	12.57d	240.00dl	400.00dl	.95	3.20
Seattle	124.00	.51b	91b	....	..	150.00c	.....	.88ee	2.65ee

*WROUGHT STEEL PIPE

Mill	3/4 to 6 in. Lap Weld Galv. %	Lap Weld Black %	Butt Weld Galv. %	Butt Weld Black %
Lorain, Ohio	14.5a	17.0e	16.5a	17.0eb
Aliquippa, Pa.	12.5a	33.5a	38.5a	35.5a	16.5a	17.0eb
Benwood, W. Va.	14.5a	38.0e	38.5a	38.0eb
Youngstown, O.	17.0e	38.5a	38.5b	39.0eb
Indiana Harbor, Ind.			23.0b	24.0ab
Sharon, Pa.			23.0	21.0	43.5	41.5
Wheatland, Pa.			21.5	19.5	43.5	41.5
Etna, Pa.			23.0b	21.0b	43.5b	41.5b
Fontana, Calif.			22.0	20.0	32.0b	32.0b
Sparrows Pt., Md.					42.5	41.5

Mill	2½ & 3 in. Butt Weld Galv. %	Butt Weld Black %
Lorain, Ohio	43.5	43.5
Aliquippa, Pa.	43.5	43.5
Sharon, Pa.	43.5	43.5
Wheatland, Pa.	43.5	43.5
Etna, Pa.	43.5	43.5
Fontana, Calif.	43.5	43.5
Benwood, W. Va.	43.5	43.5
Youngstown, O.	43.5	43.5
Indiana Harbor, Ind.	42.5	42.5
Sharon, Pa.	43.5	43.5
Wheatland, Pa.	43.5	43.5
Etna, Pa.	43.5b	43.5b
Fontana, Calif.	32.0b	32.0b
Sparrows Pt., Md.	42.5	41.5

‡ Delivered. a Class B & heavier. Based on existing freight rates; subject to rate change. Gas pipe and class A, $5 per ton additional. 4 in., $7 per ton additional. 30 in. and larger, usually. $1 per ton less. b Extra strength ASTM C 200–44T. c 4-in., $90. d 8S361-A. e 30-in. f F.o.b. factory. g Culvert pipe. Reinforced, ASTM C76–41. h Reinforced, ASTM C75–41. i Reinforced, ASTM C76–37. j Centrispun. k Per 100 ft. l F.o.b. plant. m Truck delivery. o Listed price is based on LCL (no minimum). p Less than 5 tons, per price per ft. t Within switching limits. u ASTM C13–40. v C.L. f.o.b. origin, freight allowed. x 2 ft. lengths. y 3 ft. lengths. z CESA A 60–1941 specifications used. aa No. standard specifications in Can. bb Freight allowed to destination in city. cc Truck loads; f.o.b. plant, Newton. dd LCL, delivered, f.o.b. truck. ee 1% off for cash. ff 21 . gg Extra strength ASTM C–200–50. A Standard strength. * 6" to 8", 1.60 per ft.; 8" to 12", 2.00 per ft.; 12" to 18", 2.50 per ft.; 18" to 24", 3.00 per ft.; 24" to 30", 3.50 per ft.; 30" to 36", 4.00 per ft.; 36" to 42", 4.50 per ft.; 42" to 48", 5.00 per ft.; 48" to 54", 5.50 per ft.; 54" to 60", 6.00 per ft.; 60" to 66", 6.50 per ft.; 66" to 72", 7.00 per ft.; 72" to 78", 7.50 per ft.; 78" to 84", 8.00 per ft.; 84" to 90", 8.50 per ft.; 90" to 96", 9.00 per ft.; 96" to 102", 9.50 per ft.; 102" to 108", 10.00 per ft.; 108" to 114", 10.50 per ft.; 114" to 120", 11.00 per ft.; 120" to 126", 11.50 per ft.; 126" to 132", 12.00 per ft.; 132" to 138", 12.50 per ft.; 138" to 144", 13.00 per ft.

‡ Threaded and coupled. a 3½ to 4 in. b Continuous weld. c 5 and 6 in.

carlots, F.o.b. track class 150.

* WROUGHT STEEL PIPE: Discounts from standard list consumers carload prices. Base price approx. $200 per net ton. List prices per ft.: *Butt Weld:* ⅜ in., 5½¢; ½ in., 6¢; ¾ in., 8½¢; 1 in., 11½¢; 1¼ in., 17¢; 1½ in., 23¢; 1¾ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 76½¢. *Lap Weld:* 3½ in., 92¢; 4 in., $1.09, 5 in., $1.48; 6 in., $1.92. Freight rates to destination to be added to price plus 3 percent tax on transportation.

WROUGHT IRON PIPE: List prices per ft. same as wrought steelpipe. Discount for Pittsburgh base. *Butt Weld* — 1 in. black, + 20.0, galv + 50.0; 1¼ in. black, + 20.0, galv. + 49.5, 1½ in. black, + 14.0 galv. + 46.0; *Lap Weld* — 2½ in. to 3½ in. black + 20.5. galv. + 48 5; 4½ in to 8 in. black + 17.5, galv. + 44.0. Freight rates to destination to be added to name delivered price.

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F. O. B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)

All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1 Lengths up to 20 ft. (Prices in italics)

	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh
Atlanta	† **$73.00**	**$76.00**	**$67.00**	**$69.00**	**$73.00**	**$76.00**	**$75.00**		
Baltimore	* **98.00**	**100.00**	**80.00**	**85.00**	**85.00**	**90.00**	**112.00**		
	104.50g	*104.50g*	*105.00g*	*105.00g*	*105.00g*	*105.00g*	*115.50*	*$124.50*	*$124.50*
Birmingham	† **83.00**	**83.00**	**70.00**	**80.00**	**83.00**	**85.00**	**95.00**		
	85.00	*85.00*	*78.00*	*80.00*	*80.00*	*79.00*	*85.00*	*85.00*	*85.00*
Boston	**98.00a**	**104.00a**	**98.00a**	**96.00a**	**104.00a**	**110.00a**			
	‖ *98.00*	*98.00*	*108.00*	*108.00*	*108.00*	*108.00*	*120.00*	*126.00*	*126.00*
Chicago	** **98.100**	**104/105**	**92.00**	**99/100**	**101/102**	**105/106**	**105.00**		
	103.00	*104/105*	*104/105*	*106/108*	*108/110*	*108/110*	*110.00*	*110.00*	*110.00*
Cincinnati	* **96.00**	**98.00**	**84.00**	**92.00**	**96.00**	**98.00**	**118.00**		
	109.00	*109.00*	*111.00*	*111.00*	*111.00*	*111.00*	*126.90*	*121.00*	*121.00*
Cleveland	** **96.00**	**100.00**	**80.00**	**95.00**	**97.00**	**105.00**			
			98.00	*104.00*	*107.00*	*110.00*	*135.00*	*135.00*	*135.00*
Dallas	†† **78.00**	**80.00**	**69.00**	**58.00**	**59.00**	**59.00**	**98.00**		
Denver	* *Not in stock*		*131.00*	*120.00*	*128.00*	*127.00*	*137.00*	*145.00*	*146.00*
Detroit	‡ **106.00**	**110.00**	**100.00**	**108.00**	**112.00**	**113.00**			
	99.75	*100.75*	*105.75*	*100.50*	*105.50*	*104.00*	*120.00*	*120.00*	*120.00*
Kansas City	* **120.00**	**120.00**	**120.00**	**120.00**	**120.00**	**120.00**			
	120.00	*120.00*	*120.00*	*120.00*	*120.00*	*120.00*	*145.00*	*155.00*	*155.00*
Los Angeles	1 *92.00*	*92.00*	*92.00*	*92.00*	*92.00*	*92.00*	*110.00*	*120.00*	*110.00*
Minneapolis	# *130.00*	*130.00*	*135.00*	*135.00*	*135.00*	*135.00*	*150.00*	*150.00*	*150.00*
Montreal	*ab85.00*	*90.00*	*85.00*	*85.00*	*90.00*	*100.00*			
	175.00	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*
New Orleans	† **100.00**	**100.00**	**92.00**	**85.00**	**90.00**	**94.00**	**118.00**		
	† *100.00*	*102.00*	*103.25*	*101.25*	*101.25*	*99.50*	*122.00*	*122.50*	*117.00*
New York	‡ **105/110**	**110/115**	**100/105**	**107.50/112.50**	**112.50/117.50**	**117.50/122.50**	**150/160**		
			Range from $115.00 to $120.00				*155/150*	*145/150*	*145/150*
New York	** **95.00**	**97.00**	**82.00**	**93.00**	**96.00**	**99.00**	**130.00**		
	95.00	*95.00*	*105.00*	*105.00*	*105.00*	*105.00*	*116.00*	*125.00*	*125.00*
Philadelphia			**Range from $117.00 to $127.00**				**117/127**		
			Range from $150.00 to $140.00				*130/140*	*140/150*	*140/150*
Pittsburgh	††		**Range from $90.00 to $95.00**			**100/110**	**100/110**		
			Range from $100.00 to $110.00			*100/110*	*110/115*	*145/155*	*145/155*
St. Louis	*fe***118.00e**	**122.00e**	**104.00**	**110/117**	**110/123**	**122/136**			
			118.00e	*125.00e*	*125.00e*	*127.00e*	*160.00e*	*160.00*	*160.00*
San Francisco	*A† 65.66*	*67.00*	*74.00*	*78.00*	*72.00*	*72.00*	*72.00*	*80.00*	*80.00*
Seattle	† *77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*

	2x12 Rgh	12x12 Rgh
Atlanta		
Baltimore	**$146.00**	**$148.00**
Birmingham	**115.00**	**130.00**
Boston		
Chicago	**134.00**	**134.00**
Cincinnati	**125.00**	**125.00**
Cleveland		
Dallas	**108.00**	**98.00**
Denver		
Detroit		
Kansas City		
Los Angeles		
Minneapolis		
Montreal		
New Orleans	**148.00**	**140.00**
New York	**210/240**	**210/240**
New York	**190/200**	**190/200**
Pittsburgh	**100/110**	**115/125**
St. Louis		
San Francisco		
Seattle		

LONG LEAF Y. P. Merchantable grade up to 20 ft.

PLYWOOD Rail freight increment (See note for base price)

	⅜"	¾"
Atlanta	**$22.32**	**$27.24**
Baltimore	22.86	27.90
Birmingham	21.78	26.58
Boston	22.86	27.90
Chicago	18.72	22.80
Cincinnati	21.78	26.58
Cleveland	22.20	27.12
Dallas	18.72	22.80
Denver	13.92	16.98
Detroit	21.78	26.58
Kansas City	16.56	20.16
Los Angeles	13.38*ab*	16.26*ab*
Minneapolis	16.56	20.16
Montreal		
New Orleans	18.72	22.80
New York	22.86	27.90
New York	22.86	27.90
Philadelphia		
Pittsburgh	22.56	27.48
St. Louis	18.72	22.80
San Francisco	10.08*a*	12.30*a*
Seattle		

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. # Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* *a* Spruce *b* Tax exempt. *c* 5M lots. *d* 8–12 ft. lengths. *e* 8–16 ft. lengths. *f* 18 ft. or under. *g* No. 1 common. *i* 8 ft. lengths. *k* No. 3 common *l* 8–10 ft. lengths.

A Rail freight rate from Northwest mills to San Francisco are $11.50 to $15.00 per M ft bm. From Northern Calif. mills $9.00 by rail $12.00 by truck to yard with surfaced stock $2.00 to $3.00 less.

PLYWOOD: Plyform grade Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ¼", $167.00; on ½", $191.00. Exterior concrete form ⅝" $187.00, ¾" $209.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. *a* Lower rate by water shipment. *b* 50,000 lb. minimum.

* Freight rate increase of 6¢ per cwt., not included in these figures.

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS: Discounts from jobbers list, Feb. 1, 1950a Single or Double Thickness A quality	B quality	EXPLOSIVES: Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*
Atlanta	79%	80%	$0.2275
Baltimore	70–10%	78–10%	.2275
Birmingham	83%	83%	.1750
Boston	79–10%	79–10%	.2275
Chicago	78%	78%	.2275
Cincinnati	78%	78%	.2275
Cleveland	78–10–10%*f*	78–10–10*f*	.2675
Dallas	75%	75%	.2350
Denver	81–5%	81–5%	.2325
Detroit	78–10–10%	78–10–10%	.2275
Kansas City	80–10%	80–10%	.2325
Los Angeles	75%	80%	.23
Minneapolis	78–10%	78–10%	.2325
Montreal	45–15%*bc*	45–15%*bc*	20.90*bi*
New Orleans	78%	77%	.2325
New York	82%*f*	82%*f*	.38*g*
Philadelphia	76%	78%	.2275
Pittsburgh	82%	82%	.20
St. Louis	80–10%	80–10%	.2325
San Francisco	70%	76%	.2275
Seattle	75%	78%	.23

Price of 60% Ammonia Gelatin is $0.0125 per lb. higher than 40%

Glass: a Jobbers' list price per box, 14 x 20, ss, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. *b* Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. *c* Single thickness. *f* Disc from Oct. 1950

Explosives. * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g* In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $9.00 per trip. *h* F.o.b. city per 100 lb. forcite, 40%. Forcite 60%, $22.65. *i* F.o.b. Beloeil (near Montreal).

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.175	$0.2075	$0.2275
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.18 – .1875	.2125–.22	.2325–.24
Rocky Mtn. States	.18 – .1925	.2125–.22	.2325–.245
Pacific N. W. States	.1775–.19	.21 – .2225	.23 – .2425
Pacific S. W. States	.175 – .1825	.2075–.21	.2275–.2325

PILES, TIES F. O. B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail: Pine*	Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.43	....
12-in.— 2-ft. from butt	6-in.	50 to 59-ft.	.46	....
12-in.— 2-ft. from butt	6-in.	60 to 69-ft.	.50	....
12-in.— 2-ft. from butt	6-in.	90 to 100-ft.	....	....
13-in.— 3-ft. from butt	5-in.	91 to 100-ft.	....	....
14-in.— 2-ft. from butt	6-in.	50 to 69-ft.	.50/.60	....
14-in.— 2-ft. from butt	6-in.	70 to 79-ft.	.70/.75	.85
14-in.— 2-ft. from butt	5-in.	80 to 85-ft.	.75/.85	.86
14-in.— 2-ft. from butt	5-in.	85 to 89-ft.	....	.92
14-in.— 2-ft. from butt	5-in.	90 to 100-ft.	....	.94

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:

		6"x8"x8" Untr.	6"x8"x8" Tr.	7"x9"x8'6" Untr.	7"x9"x8'6" Tr.
Boston	Oak	....	....	....	....
	Pine	....	....	....	....
New York	S. L. Sap Pine	$2.10	$3.90	$3.00	$5.00
	Mixed Oak	2.65	4.20	3.25	5.50
Birmingham	Hardwood	2.00	3.13*a*	2.68	4.16*a*
Chicago	Red Oak	....	4.00*a*	....	5.00*a*
Los Angeles	Douglas Fir	....	....	....	....
	Redwood	....	....	....	....
Philadelphia	Red Oak	2.15/2.33	3.10/3.13*a*	3.00/3.10	4.15/4.25*a*
St. Louis	White Oak	2.94		3.65	
	Red Oak	2.84	3.49*a*	3.52	4.51*a*
	Sap Pine or Cypress	3.31*a*		4.27	
San Francisco	Douglas Fir	2.20*e*	3.25*ef*	2.92*bf*	4.30*cef*
Montreal	Birch or Maple	....*h*	....*h*	....*h*	....*h*

Tr.— Treated; Untr.— Untreated. *a* Creosoted. *b* 7" x 9" x 8'. *c* Empty cell. *e* Green. *f* F.o.b. cars. *h* No constant price available. *i* Not available.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb.	$6.00
Chlorine cylinders, liquid, per lb. f.o.b. works	.0875
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	25.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb.	2.20
Soda ash, 58%, in paper bags, per 100 lb. dense	1.60
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.65
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	8.95

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED Per M. lots of 2,000 pieces or over,			STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over,			BRICK Per M. in quantity		LIME Per ton, In paper, Carload lot,		
	3x12x12 in.	4x12x12 in.	8x12x12 in.	8x12x12 in.	10x12x12 in.	12x12x12 in.	Common backing	Straight hard	Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	$195.00	$207.50	$247.50	$327.00	$342.00	$381.50	$27.78	$27.78	$19.00	$17.50	$17.50
Baltimore	183.00	195.00	366.00	415.00	541.00	618.00	36.00*k*	41.00*k*	30.00	21.00	.....
Birmingham	118.00*p*	128.00*p*	236.00*p*	283.00*p*	.....	.....	23.50*ff*	28.50*gg*	26.37	17.10	. .
Boston	196.00†	209.00†	392.00†	383.25†	.....	.....	33.50*p*	36.50*p*	30.00†	28.00†	.
Chicago	135.00	145.00	280.00	.....	.....	.....	21.00	23.00	30.80	26.00	.....
Cincinnati	185.00*j*	195.00*j*	340.00*jdd*	.....	.....	.....	34.50*j*	46.00*j*	26.37*j*	24.62*j*	.....
Cleveland	149.00**	156.00**	.....	.....	.....	.....	32.00	32.00	25.50	23.50	31.00*ee*
Dallas	.....	118.00	.....	.....	.....	.....	19.75	35.25	32.00	21.80	.....
Denver	.....	.....	.....	.....	.....	.....	34.00	40.00	34.80*bb*	28.00*bb*	34.00*bb*
Detroit	127.75	136.25	255.55	.....	317.25	362.60	34.90*cc*	33.30*cc*	32.00	32.00	.....
Kansas City	115.50	122.50	245.00	245.00	303.50	367.00	26.00	26.00	30.50	24.50	27.00
Los Angeles	*r*	*r*	*r*	*r*	*r*	*r*	21.00‡	.....	34.00	34.00	35.00
Minneapolis	171.50*p*	192.50*p*	386.00*p*	192.50*wp*	.....	.....	32.00*wp*	36.00	37.00*bbe*	28.00*bbe*	38.00*bbde*
Montreal	150.00*ag*	162.50*au*	300.00*au*	.....	.....	.....	31.00	41.50	34.80	32.50	24.60*m*
New Orleans	170.00	170.00	310.00	380.00	.....	.....	31.00	.....	.....	20.00	20.00
New York	138.70*h*	147.90*h*	203.40*ch*	221.90*hn*	.....	.....	38.50	.....	38.00	32.00	.....
Philadelphia	126.30	134.80	252.60	302.74	361.35	455.74	29.00	32.00	36.00	21.50	.....
Pittsburgh	112.00	117.00	189.00	216.00	279.00	317.00	32.00	42.00*y*	25.00	23.00	2.97*m*
St. Louis	138.00*cc*	158.50*cc*	313.00*cc*	.....	351.00*cc*	.....	40.00*al*	36.25*v*	.85*aaa*	.65*aaa*	1.10*aaspee*
San Francisco	156.85*a**	177.10*a**	235.30*ddz**	.....	.....	.....	37.00	.....	26.60	26.60	2.65*m*
Seattle	175.00*cc*	190.00*cc*	.....	190.00*eccv*	.....	.....	39.00*u*	40.00*v*	37.50*hh*	1.50*ff*	3.90*mhh*

† F.o.b. yard Roxbury. *a* Smooth. *b* Per 50 lb. bags. *c* 6 x 12 x 12 in.-3 cell. *d* Pulverized hot. *e* 5%, 10th following month. *g* 5½ x 8 x 12. *h* F.o.b. trucks, job site N.Y.C. *j* Truck load or over. *k* $1.00 discount. *l* Red face. *m* Per bbl., 180 lb. *n* 7½ x 7⅞ x 12. Speed title. *p* Truck lots. *q* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5½ x 8 x 11¼. *u* Tax exempt. *v* Sand lime. *w* 5 x 8 x 12. *y* Stacked. *z* Pebble lime price per 80 lb. sack. *aa* Price per sack. Lime not sold per ton. *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. 80% common. *gg* Select. *hh* LCL. § F.o.b. yard. ‡ Per 60 lb. sack, no incr., ton price no longer quoted. ** Only 1 plant producing quotes on warehouse delivery, previous quotes were truck delivery. * F.o.b. Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD	WHITE LEAD	READY-MIXED PAINT Per gal., drums			ROOFING SUPPLIES Carload lots f.o.b. factory				
	Per 100 lb. in 600-lb. (Approx.) bbl. Dry *a*	Per 100 lb. in 100 lb. cases in oil *w*	Graphite *b*	Aluminum *e*	Ferric Oxide *d*	Rolls, slate surfaced, 85–90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
Atlanta	$21.80	$32.925	$1.75	$2.70	$1.65	$2.06‡	$2.06‡	$2.06‡	$1.00‡	$36.00‡
Baltimore	21.55	32.55	2.65	4.10	3.22	2.50	4.17	4.17	.42	37.00
Birmingham	21.80	32.925	3.90	3.40	....	2.80	2.75	2.75	....	40.50*ee*
Boston	21.55	32.55	....	....	....	2.67*gg*	2.56*gg*	.47*g*	.47*g*	42.00*g*
Chicago	21.55	32.55	..	....	....	2.73‡*u*	3.04‡*o*	3.04‡*o*	38.00‡*bbr*	43.00‡
Cincinnati	21.55	32.55	....	....	....	2.30	2.30	2.30	.42*y*	42.36
Cleveland	21.55	32.55	2.94*ppqA*	3.37*qqB*	2.80*qqC*	2.30‡*q*	2.30‡*o*	2.30‡*o*	.36‡*y*	40.00‡*hh*
Dallas	21.80	33.30	....	4.05	....	3.50*g*	3.75*o*	4.35*o*	.36	46.00
Denver	22.05	33.05	3.07	5.15	2.87	3.25*o*	2.40*o*	2.40*o*	.45*ff*	42.00
Detroit	21.55	32.55	2.35	3.40	2.50	2.30	2.30*f*	2.30	.51	40.00
Kansas City	21.55	32.67	....	2.71*ys*	2.65	2.50	2.50*o*	2.50*o*	.313	48.00
Los Angeles	21.55	32.80	3.30	4.50	4.20	2.97	2.01*e*	*l*	.44	*l*
Minneapolis	21.55	28.55/32.67	....	....	....	2.30*hdd*	2.30*hdd*	2.30*hdd*	.34*dd*	37.00*r*
Montreal	....	20.70	....	....	....	3.80‡	3.85*ff*	3.00‡	3.00‡	3.15‡*kt*
New York	21.55	32.55	3.45*y*	....	....	2.30	2.30*o*	2.30*o*	.34*z*	37.00
Philadelphia	21.55	32.55	3.25	3.85	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	21.55	32.55	2.65	2.65	3.15	2.40	2.81*o*	2.81*o*	.39	42.00
St. Louis	21.55	32.55	....	....	....	2.30	2.30*h*	2.30*h*	.36*y*	38.00
San Francisco	21.55	32.80	2.40	3.40	....	2.95	4.00*nn*	....	.49	....
Seattle	21.55	33.05	2.51*m*	2.67*m*	....	3.58*mqcc*	3.05*hmcc*	....	.59*mcc*	52.00‡*mcc*

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* U. S. War Dept. Spec. 3-49A. *c* ASTM Spec. D266-31. *d* 80% minimum ferric oxide. *e* 15 lb. *f* Per 432 sq. ft. *g* F.o.b. yard, Roxbury. *h* Per roll. 65 lb. *i* Net carload lot prices; Minneapolis and vicinity. *j* Asphalt pitch. *k* Per cwt. *l* Not used. *m* 1% discount for cash. *n* Per 60-lb. *r* 6-drum. *q* Per 90-lb. roll. *r* F.o.b. factory chicago. *s* 466 Med. *t* Federal tax included. *u* Per 90 lb. square. *v* Per ton. *w* Price to large paint contractors is $1.25 less. *x* Mineral surfaced. *y* 55-gallon container. *z* Drums. *aa* Approximate cost per 100 lbs. *bb* Roofers coating and cement. Price per ton. *cc* LCL truck delivery. *dd* 2% cash discount. *ee* Asphalt, in 100 lb. package. *ff* 5-gal drums. *gg* F.o.b. factory. *hh* Incl. freight. *A.* TTP 27. *B.* TTA 468A. *C.* TTP 31A.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$2.75	$2.20	$2.335	$2.25	$2.75	$2.60	$2.75	$1.05	$1.05
Baltimore	3.20*p*	2.58	2.90	2.60/2.80	2.75	2.75	2.65	1.49	1.49
Birmingham	2.75	2.125	2.42	2.06	2.42	2.50	2.50	1.10	1.20
Boston	2.888	2.475	2.75	2.80	2.97	2.60	2.695	1.815	1.815
Chicago	3.25*k*	2.70	2.80	2.65	2.96*n*	2.91*n*	2.75	2.05*m*	2.05*m*
Cincinnati	2.90	2.475	2.665	1.825/2.85	2.75	2.70	2.64	1.85	1.65
Cleveland	3.00	2.825*t*	2.825	2.70	2.825	2.825	2.825	2.10	2.10
Dallas	3.4375†	2.3375	2.50	2.475	3.437†	2.625	2.6125	1.20	1.35
Denver	3.00	2.35	2.35	2.48	3.00	2.65	2.65	1.575	1.575
Detroit	2.85	2.75	2.95*m*	2.80	3.005*l*	2.85	2.75*m*	2.00	2.00
Kansas City	2.86	2.365	2.53	2.365/2.61	3.025	2.66	2.625	1.73	1.73
Los Angeles	3.00	2.35	2.50	2.30	3.125	2.625	2.625	1.75	1.75
Minneapolis	2.90	2.40	2.57	2.35	2.75	2.71*n*	2.55	1.67	1.67
New Orleans	2.70	2.06	2.45	2.325	2.375	2.50	2.45	1.10	1.10
New York	3.548*br*	3.09*bo*	3.348*o*	3.348*o*	3.599*or*	3.456*as*	3.2[illegible]*bp*	1.90	1.90
Philadelphia	3.46*i*	2.65	3.14*r*	2.65/2.95	3.075*k*	3.28/3.53*u*	2.85*s*	1.51	1.81
Pittsburgh	3.25	2.75	2.75	2.825	2.75	2.75	2.80	1.70	1.70
St. Louis	3.05*e*	2.70*h*	2.75	2.75	3.00	2.887*c*	2.625	1.77	1.77
San Francisco	3.25*b*	2.45	2.70	2.41	3.125	2.75	2.75	1.70	1.70
Seattle	3.30	2.51	2.71	2.50	3.00	2.65	2.75	2.11	2.00
Montreal*	1.75	1.55	1.65	1.45	1.75	1.65	1.70	1.15	1.15

a 6 hr. day. *b* 7 hr. day. *c* Incl. 3% vacation stamp fund for bricklayers; 4% for electricans plus 1% N.P. * Cost of living bonus now included in basic wage. *i* Includes 5¢ per hr. tool replacement. † Plus $5.00 daily bonus. *h* $2.45 homes and housing + 5¢ vacation fund. *s* Incl. 3½% welfare. *j* Incl. 9¢/hr. welfare. *k* Incl. 7½ ¢/hr. welfare fund. *l* Incl. 4% vacation fund. *m* Incl. 5¢/hr. welfare ins. fund. *n* Incl. 6¢/hr. welfare fund. *o* Inc.. 3% welfare fund. *p* Incl. 3% welfare fund and 3% pension fund. *r* Incl. 3% welfare fund and 20¢ pension fund. *s* Incl. 4% welfare and pension fund and 4 % vacation fund. *u* Incl. 1% welfare fund. *v* Incl. 10¢ welfare fund.

MEXICO CITY PRICES

In Pesos, F.o.b. City		Dec.'51	Jan.'52
Common Wages—Building (8 hr. day)	av. per hr.	.82*	.83*
Common Wages—Heavy Const. (8 hr. day)	av. per hr.	.93*	.93*
Skilled Labor Wages			
Carpenters (8 hr. day)	av. per hr.	2.25*	2.25*
Bricklayers (8 hr. day)	av. per hr.	2.25*	2.25*
Struct. Iron Workers (8 hr. day)	av. per hr.	1.25*	1.25*
Struct. Steel Shapes			
3"-15" x 12 meters	per metric ton	1,111.01	1111.01
Reinf. Steel, Corr. Rods			
⅜" x 11 meters	per ton	1,261.51	1261.51
½" x 11 meters	per ton	1,251.13	1251.13
⅝" x 11 meters	per ton	1,240.75	1240.75
¾" x 11 meters	per ton	1,230.37	1230.37
⅞" x 11 meters	per ton	1,230.37	1230.37
1" x 11 meters	per ton	1,230.37	1230.37
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	45.00	45.00
Rose Gravel	per tr. load	41.00	41.00
Cement, Std. Port. (Tolteca)	per ton	155.00	155.00
Lumber			
Mex. Sacred Fir (OYAMEL)	per M ft.	800.00	800.00
1st Class Pine	per M ft.	1400.00	1300.00
2nd Class Pine	per M ft.	1100.00	980.00

* Increase by 1/6th—work 6 days, paid for 7 days.

ENR Skilled Average: (Bricklayers, Carpenters, Ironworkers) $2.758. **ENR Common Average:** $1.659.

AFL leaders call for new federal agency to screen CMP requests from military

The AFL Executive Council in mid-winter conference at Miami Beach last week called for the creation of a new government agency of civilians to supervise the allocation of critical materials and prevent hoarding by the armed forces.

The 15-man executive council's statement said: "Disturbing indications had been detected of a tendency by the military services to reach for the moon, often disregarding limited supplies of materials.

"It would be the height of folly to assure the most economical use of critical materials in the civilian economy while permitting the military to make extravagant use of such materials."

• **No evidence, but**—The council's policy declaration acknowledged that the AFL had no evidence on hoarding by the military. "However," the labor chieftains said, "suspicions are aroused when it is known that for many items allotments to the military are at about the same level as at the peak of World War II."

AFL President William Green, amplifying the statement, said it was the council's thinking that the administration should establish a board within the Defense Department to check on allocations. The board would be composed of representatives of both labor and business.

• **Council endorses MVA**—The AFL executive group also endorsed the proposed Missouri Valley Authority for flood control and government-produced electricity, and took a strong stand on price controls and economy in government.

"Prices cannot be stabilized," the council said, "under the tragically inadequate control provisions of the present Defense Production Act. And the AFL will refuse to go along with a one-sided policy which on one hand permits price inflation but keeps wages frozen."

The council urged a general tightening of price controls and rollbacks in what it called "aggravated cases."

It also demanded the closing up of tax loopholes, increased production and provisions in tax laws that would enable and encourage people to save more money.

• **Defense bonds not popular**—"The government should recognize that defense bonds are no longer a popular investment and should issue a new bond bearing a higher interest rate and with shorter maturity."

Green said the AFL will support Universal Military Training when the matter comes before Congress again, but with a proviso. "It must be established," he said, "so that persons in lower income brackets will not be hurt by having their breadwinners held in service for a long period."

• **Take stand on Communism**—The council endorsed the stand previously taken by Green on Communism—that the Communist threat in organized labor cannot be eliminated through federal legislation.

Green released a copy of a letter he had written to Sen. Hubert Humphrey, Minnesota Democrat, who had asked the AFL for help in drafting anti-Communist labor legislation.

The letter said, in part, "Experience makes it clear that no legislation of any kind is necessary to prevent any union from being dominated by Communists. The enactment of such legislation would have a bad psychological effect."

Contract dispute reveals sky-high wage payments

A plumbing foreman, paid at a rate of $3.50 an hour, worked a forty-eight-hour "day" recently, on a concrete blockhouse in Yucca Pass, Nevada. During one week the same foreman worked a total of 206 hours for which he received $721 plus $35 extra for room and board. The forty-eight-hour "day" was a double-time work-round-the-clock Saturday.

This information was disclosed at a contract appeal hearing before the Atomic Energy Commission concerning a project at Yucca Pass. It was part of the evidence offered by the McNeil Contracting Co., of Los Angeles to show the extraordinary wages paid by Haddock-Engineers, Ltd., of Los Angeles.

The AEC had canceled the McNeil Company's contract in mid-construction on Sept. 22, 1951, saying that the work was behind schedule, and had the work finished by the Haddock concern.

Representatives of the McNeil Company charged that a $2.5 million cost-

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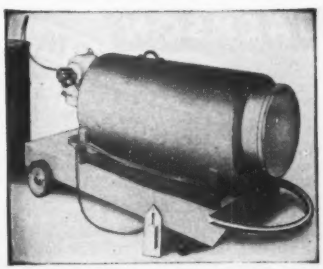

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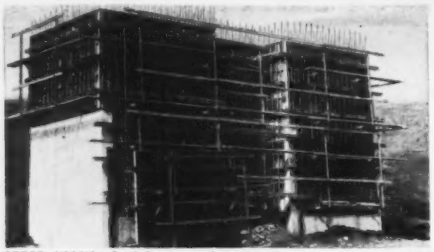

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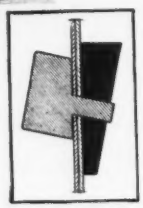

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plus contract, for other construction, held by the Haddock company enabled them to "pirate" labor away from McNeil. The lack of labor resulted in slow progress for McNeil.

Other evidence produced by the McNeil company revealed that common labor received as much as $250 a week.

As a result of these disclosures the full Senate-House Atomic Energy Commission ordered public hearings.

WSB awards pay boosts to workers at A-plant

In the first case submitted to it voluntarily by management and labor for a binding decision, the Wage Stabilization Board last week granted pay boosts to construction workers employed at the Hanford, Wash. Atomic Energy project.

This function of the WSB has seldom been used, although several other voluntary cases are pending.

The decision followed recommendations by the Construction Industry Stabilization Commission. It covered so-called isolation pay for construction workers and pay rates for sheet metal workers.

The Board granted an additional $1 daily to workers for driving from their homes to the site of their jobs. Workers now living within the confines of the barricaded security area will get $2 daily instead of $1 as previously.

Workers living outside of the barricaded area will get $3 daily as allowance. Previously they got $2. The larger allowances are to be effective with payrolls after Jan. 16.

The Board also granted a 7-cent hourly increase in pay rates for sheet metal workers, increasing the rate from $2.45 to $2.52 hourly. The increase is retroactive to Aug. 1, 1951.

Salary board to hear pay increase petitions

Petitions for pay increases for managerial employees will be processed at six field offices to be opened in early February by the Salary Stabilization Board. The new offices will be located at Boston, New York, Detroit, Cleveland, Denver and San Francisco.

Wages increase slightly in construction industry

Wage scales of union workers in the construction industry rose 0.9% during the fourth quarter of 1951, the U. S. Department of Labor's Bureau of Labor Statistics announced today. Last year, during the same period, union workers received a rise of 1.8 percent in wages.

Construction costs increase

Construction costs showed the sharpest increase last month since October. Mainly responsible for the boosts were highly unskilled labor rates and higher lumber prices.

ENGINEERING NEWS-RECORD's Construction Cost Index moved up 1½ points in January to a new reading of 549.26. ENR's Building Cost Index was up a fraction of a point to a new reading of 406.05.

The Construction Cost Index for February is 2.1% higher than a year ago, while the Building Cost Index shows a 1.9% increase.

• **Materials rise**—Cement, sand, fir and pine lumber, brick, ready-mixed concrete showed small increases for February. There was no change in price of steel and structural clay tile.

Leader in the cost increase, percentage-wise, was lumber (2x4 fir), which went up 86 cents per M ft bm. The new price was $106.51 per M ft bm.

There were small increases in pine 2x4's, ready-mixed concrete, fractional increases in cement, sand and brick.

• **Common labor up**—The 20-cities average for unskilled labor advanced half a cent to $1.659 an hour. Skilled labor rates remained the same. The skilled average is now $2.758 an hour; bricklayers, $3.069 an hour; structural ironworkers, $2.697; and carpenters, $2.507.

• **Other indexes up**—Meanwhile, two other cost indexes reported increases. The Fuller Building Cost Index for January went up to 415, compared to 409 in October. It is 4% above the 398 reading for January, 1951.

And, E. H. Boeckh & Associates reported their building cost index for commercial and factory type buildings rose three-tenths of a point in December, to a new reading of 238.0. However, the Boeckh index was unchanged for brick and concrete commercial and factory buildings. It currently stands at 266.6.

N. Y. to use foreign steel, two others reject offers

The New York State Thruway Authority has decided to waive its ban on the use of foreign-made steel, for the duration of the steel shortage.

Foreign steel must meet the same specifications required of domestic steel, Thruway officials explained.

Meanwhile, the state highway departments in Ohio and Pennsylvania announced that they were rejecting offers of foreign steel.

Ohio declined offers on the grounds that it is a steel-producing state. Pennsylvania, which could well offer the same reason, cited instead the higher costs of imported steel.

• **Shipments highest since 1930**—Meanwhile, the American Institute of Steel Construction reported that shipments of fabricated structural steel during 1951 totaled 2,702,262 tons—the highest since 1930—and some 426,000 tons greater than the 1950 total.

The total backlog for fabricated structural steel (bookings scheduled for work ahead) totaled 2,670,202 tons as of Dec. 31. About 44% of this backlog is slated to be worked off within four months.

Pioneer Engineering acquires Jaeger line

Pioneer Engineering Works, Minneapolis, Minn., subsidiary of Poor & Co., Chicago, last week acquired the complete line of Jaeger Co., asphalt paving and finishing machines.

The equipment line will hereafter be manufactured and distributed by Pioneer at its Minneapolis plant, and handled and sold through Pioneer distributors.

This is the second major change resulting from purchase of Pioneer by Poor & Co. in May, 1950. The first major change, in June, 1950, was the purchase of the Rotary Snow Plow Co., of Minneapolis.

Business brief . . .

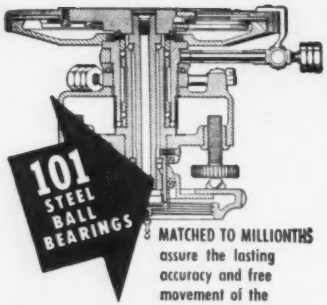
• **Housing starts**—The Bureau of Labor Statistics reported that preliminary figures place December, 1950, housing starts at 62,000. Total for 1951—1,090,000.

ENGINEERING CONSTRUCTION CONTRACTS REPORTED TO ENGINEERING NEWS-RECORD—JANUARY, 1952

ENGINEERING NEWS-RECORD *reports contiental U.S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* $34,000 *other public works,* $60,000; *industrial buildings,* $82,000; *other buildings,* $300,000

Five Weeks—Thousands of Dollars (000 Omitted)

	January, 1952						Total U. S.		%	
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	January 1952 (5 Weeks)	January 1951 (4 Weeks)	Change '51 to '52 Avg. Week	Canada January 1952
Public Works										
Waterworks	420	460	6,336	879	15,315	3,119	26,538	12,508	+ 70	387
Sewerage	542	1,366	4,923	1,551	4,619	3,953	16,954	29,316	− 54	231
Bridges	1,487	984	4,712	3,379	4,530	3,227	18,319	25,666	− 43	1,789
Earthwork and waterways	184	954	32,950	504	5,355	6,926	46,873	14,653	+156	107
Streets and roads	1,775	28,645	22,582	10,217	33,886	10,227	107,332	59,146	+ 45	1,856
Public buildings, residential	4,861	12,255	40,612	9,558	3,267	3,249	73,802	83,426	− 28	8,798
Other public buildings	4,076	27,003	32,391	31,235	17,558	25,220	137,483	329,809	− 67	17,048
Unclassified	367	10,208	10,557	1,861	10,989	12,376	46,358	29,775	+ 25	9,400
Total public	**13,712**	**81,884**	**155,063**	**59,184**	**95,519**	**68,297**	**473,659**	**584,299**	**− 35**	**39,616**
Federal government (included in above classifications)	763	4,551	83,912	17,376	20,374	27,952	154,928	283,595	− 56	22,195
Private										
Bridges								2,109		
Industrial buildings	1,452	48,704	57,587	106,792	113,050	9,832	337,417	378,546	− 29	14,895
Commercial buildings, residential	15,408	54,427	109,251	32,462	45,863	5,029	262,440	170,798	+ 23	21,105
Other commercial buildings	2,643	2,300	3,930	9,004	11,888	2,476	32,241	80,984	− 68	600
Unclassified	225	540	29,568	10,414	49,834	460	91,041	50,156	+ 45	82,547
Total private	**19,728**	**105,971**	**200,336**	**158,672**	**220,635**	**17,797**	**723,139**	**682,593**	**− 15**	**119,147**
Total Engineering Construction:										
January, 1952—5 weeks	**33,440**	**187,855**	**355,399**	**217,856**	**316,154**	**86,094**	**1,196,798**		**− 24**	**158,763**
December, 1951—4 weeks	39,715	180,367	146,579	148,413	192,149	121,950	829,173			60,358
January, 1951—4 weeks	32,423	175,779	420,580	266,749	251,846	119,515		1,266,802		122,986
% Change '51 to '52	+17	+15	−32	−35	+0.4	−42				+3



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Construction Business . . .

Newcomer with know-how steps up pace of its road machinery production

Chicago window shoppers found something new had been added last week at the corner of Adams and Michigan Ave. "Gosh, I didn't know they made them so big," and "How did they ever get it in there?" were some of the astonished exclamations.

What they saw was a full-size earth-moving unit weighing 77,000 lb, with an over-all length of 54 ft. Unquestionably it is the largest single item ever displayed in such an environment as a Michigan Ave showroom where satin slips and silverware are more likely to be found.

The giant earth-mover is made up of a Pullman-Standard 12-cu yd cable-controlled, pneumatic tired scraper, hooked behind an International Harvester TD-24 tractor mounting a 13-ft bulldozer blade. The big tractor was moved into the showroom all in one piece; the 13-ton scraper in two sections plus its wheels and tires.

• **Showroom strategy**—The industrial showroom occupies 3,600 sq ft on the ground floor of the Pullman-Standard Car Manufacturing Company's 9-story building—opposite Chicago's Art Institute.

"Its chief purpose is to help educate the public as to what makes up Pullman Incorporated," said corporation president, Champ Carry. This is important, for the household word "Pullman" no longer means what it did. It is particularly important to construction people since it is they to whom the new Pullman has elected to pay considerable court.

• **Diversification program**—When Pullman Incorporated sold its sleeping car business to the railroads in 1947, it immediately started looking around for something to take its place. This was imperative since the sleeping car operation had accounted for more than half of its total volume of business, and as much as $37 million in a single year. Moreover the bulk of its remaining activity was in passenger and freight car manufacturing, a feast or famine business that did not keep its plants fully occupied. And, as a clincher, it had received some $75 million for its sleeping car business, a sum that had to be put to work in one way or another. The decision favored diversification of effort, and one of the principal chosen instruments was the manufacture of construction equipment by the company's chief subsidiary, Pullman-Standard Car Manufacturing Co., which had been formed in 1934.

Diversification had in fact been practiced earlier, in 1944, with the purchase of The M. W. Kellogg Co., designers and builders of petroleum refining and chemical processing plants, including, for example, the famous Uranium-235 atom bomb plant at Oak Ridge, Tenn. But with the sale of the sleeping car business, new impetus was given to the idea, with the result that on Dec. 31, 1950 Pullman-Standard purchased the road equipment line of the Isaacson Iron Works Co., of Seattle. Last year, Trailmobile Inc., – second largest maker of highway truck trailers—was purchased.

And as if to nail down the fact the company was deadly serious about the construction equipment business, it hired Charles W. Bryan, Jr., well known civil engineer and ship builder and construction specialist, to head up Pullman-Standard as president.

These are the moves that have now been dramatized by the opening of the Michigan Ave. showroom. The huge tractor scraper unit is the only full-size equipment shown. But in scale models and photographs may be seen highway trailers; oil refineries; passenger and freight cars; transit equipment; railroad power ballasters, cribbers and ballast cleaners; and architectural products. No doubts are permitted to exist as to Pullman's policy of diversification.

• **Construction equipment**—"By the end of this year," says Mr. Bryan, "Pullman-Standard's production of scrapers and tractor allied equipment should more than double the 1951 rate." This would be well above Isaacson's former normal production of this line.

"No limits have been set on ultimate production," declares Bryan, pointing out that present plant capacity has a potential of $20 million worth of road equipment annually.

In addition to six sizes of scrapers—a hydraulically operated 4½ cu yd and cable-operated 6-, 8-, 12-, 15- and 20-cu yd—Pullman-Standard is making a complete line of bulldozer blades at its Hammond, Ind. plant where current production runs about 250 blades per month. An additional 100 per month are made for Pullman-Standard in Isaacson's plant at Seattle.

Production is really just getting under way at the Hammond plant.

says L. S. Bergen, executive assistant to the president, "since that size shows the greatest present sales potential."

• **Large plant capacity** – Pullman-Standard has plenty of manufacturing space for the new road equipment line in its Hammond plant, which has a total floor area of 1.5 million sq ft. only about half of which is occupied by current manufacturing activities.

Tractor attachments and allied equipment—power winches and both hydraulic and cable power controls—are made in a 75,000 sq ft plant at Rockford, Ill. Pullman-Standard took a one-year lease on this plant—with an option to purchase—at the time it purchased the Isaacson line of road equipment. It bought the plant last December, at an undisclosed price.

There is also a belief in Seattle that a new plant is being considered for that area, although there is no confirmation of the rumor from Chicago headquarters.

• **Why construction equipment?**—When asked, "Why did you buy the Isaacson line?", President Bryan replies, "Obviously it gives us an opportunity to smooth out our production schedules in the face of a down-swinging cycle in freight and passenger car production. But more important, the manufacture of scrapers and dozer blades is a natural for our Hammond plant. Not only do we have ample space, but we have the equipment needed to make heavy weldments and large pressed-metal shapes; also, our shop crews are highly trained in this sort of work.

• **Why Issacson sold**—"For Isaacson, it was one of two moves," says Robert W. Isaacson, formerly vice president of Isaacson Iron Works, and now director of the road equipment section of Pullman-Standard's Road and Track Equipment Division—"either acquire a Midwest plant so that lower freight rates would permit profitable selling in the midwest and eastern markets, or sell its road equipment line and concentrate on its other items of manufacture." When Pullman-Standard showed an interest in buying, Isaacson deemed it more advantageous to sell.

On Pullman-Standard's part its interest was whetted by the fact that Isaacson's 6 models of scrapers had been sold and serviced through International Harvester Company's industrial power distributors. Likewise, the power attachments, made for assembly with IH tractors, were manufactured in two plants in the Chicago area.

Pullman-Standard will continue the same policy of cooperation with International Harvester. "In fact," says Bryan, "one of our strong sales points is that the tractor-scraper-bulldozer combination can be sold as a single package. IH tractors—made in Chicago—can be shipped by rail to Pullman-Standard's plant in Hammond, 20 miles away. There, they are mounted with bulldozer blades or combined with scrapers, to go direct to the distributor or the user."

LEANING ON A ROADBUILDING MACHINE, as Pullman has elected to do, Champ Carry, president, Pullman, Inc., talks to President Charlie Bryan of subsidiary Pullman-Standard which manufactures and sells the new products.

In continuing Isaacson's arrangement with International Harvester, the Pullman-Standard people get a ready-made sales and service organization. They have to compete, however, in the distributors' salesroom with attachments sold by other manufacturers for mounting on IH tractors. For this phase of selling—as well as selling scrapers to IH distributors—Pullman-Standard employs 14 salesmen. Interestingly enough, all but one of these salesmen are former Isaacson men. It may also be noted that Pullman-Standard has continued Isaacson's management personnel at the Rockford plant.

Scrapers, bulldozer blades and tractor attachments for export are sold by Pullman-Standard direct to the International Harvester Export Corp. These items—except scrapers—also go direct to International Harvester for equipping tractors ordered by the armed services. Scrapers are delivered direct on government orders.

As to new products, Pullman-Standard will soon announce a line of tractor-attached loaders. Other tractor allied equipment is now on the drafting board, but still secret.

• **Pullman-Standard's new president**—In any new enterprise such as this a great deal depends on management leadership and know-how. Judging by engineering training, construction experience and manufacturing savvy, Charlie Bryan, appointed Pullman-Standard's president in July 1950, should provide those ingredients.

Bryan's biggest forte in building road equipment probably stems from his experience in shipbuilding—30 years with U. S. Steel's Federal Shipbuilding and Drydock Co., which was sold to the Navy in 1948. Both ships and construction equipment call for long-term production schedules, large-scale manufacturing methods, heavy weldments and mass production.

A civil engineer by training, Bryan received his B.S. of C.E. degree from Washington University, St. Louis, in 1912; and a C.E. degree 10 years later. His early engineering life dealt with heavy construction. Following graduation he spent two years on foundation construction for the Hell Gate bridge. This was followed by two years as construction engineer and assistant superintendent on the Seventh Ave. subway in New York.

During the next two years he worked for Fraser, Brace and Co. on construction at Hell Gate bridge; caisson work at Grand Mere, Quebec; and a large munitions plant at Trenton, Ont.

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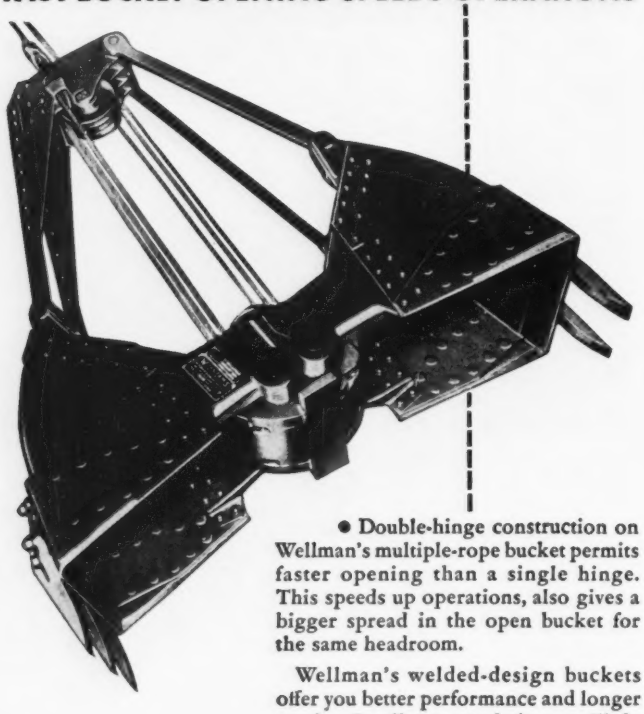

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Construction Business . . .

These six years of heavy construction prepared the way for a job in 1917 as construction engineer for U. S. Steel Corporation's newly formed Federal Shipbuilding and Dry Dock Co. Thereafter for 30 years Bryan progressed through such managerial position as plant engineer, superintendent, assistant to the president, and vice president in charge of sales and engineering, to vice president and general manager.

• **To Rome with ECA**—After cleaning up considerable paper work resulting from the sale of the shipyard, and tasting a little, long-awaited leisure, Charlie Bryan lost all interest in a plan he had for retiring. But before he could form any new connection, he was pressed into service on an ECA mission to Rome. Result: the ECA curtailed some proposed large drydock construction that wasn't justified economically, and reduced the amount of funds earmarked for the construction of new Italian shipbuilding facilities.

It was upon his return from this mission that Champ Carry offered him the presidency of Pullman-Standard Car Manufacturing Co.

• **Going it alone**—Coming into the Pullman-Standard organization strictly on his own—without bringing along any of his former associates—Bryan is cagily reticent as to any organizational changes or contemplated policy moves.

Fortunately, he is not governed by precedent, thus permitting him to shake any cobwebs out of operations that threaten to impede progress. At present he is vigorously improving Pullman-Standard's engineering on designs of both old and new products.

This is not unexpected since Charlie Bryan's roots remain deeply anchored in engineering despite his extensive background in manufacturing and management. His father was a successful civil engineer, and Bryan himself has worked hard in the vineyard of civil and structural engineering. He served a term (1945-47) on the Board of Direction of the American Society of Civil Engineers. Not one to philosophize or deliver messages, Charlie Bryan nevertheless has one strong belief: "One shortcoming of engineering graduates today," he says, "is their unwillingness to devote their technical training to industry. Most of them want to go into selling, in the belief that it is a more lucrative field than manufacturing or product development. They couldn't be more wrong." The best argument in favor of this belief is Charlie Bryan himself.

CONSTRUCTION REPORTS

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Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

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NEW ENGLAND

BIDS ASKED—BUILDINGS

▲ **Mass., Clinton** — HOUSING — B.A. 2/29 — Clinton Housing Auth., 242 Church St., housing, Proj. PHA 21-1, Flag St. $1,000,000. CD 4/20/50.

Mass., Norwood—PLANT—Bids Asked—R. Zoppo Co., 842 Providence Hy., steel sash plant, $450,000. Control Engineering Corp., 863 Washington St., Boston, lessee.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

The Savin Constr. Corp., 10 Village St., East Hartford, Conn. CA **$939,703**, est. $1,000,050. South End Bridge structure, piers and 2 abutments, West Springfield and Agawam. Bids Jan. 15, awarded Jan. 22. CD 1/21, under LB.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Peter Salvucci, 55 Pond St., Waltham, Mass. LB **$2,035,754**, est. $2,100,000. hy. and bridge, Bedford, Billerica and Burlington;

Munroe Langstroth, Inc., 1390 Providence Turnpike, Norwood, Mass. LB **$155,875**, est. $165,000; Contr. B, hy. and bridge, U-331-(10), Beverly. Bids Jan. 22. CD 1/8.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Veggo F. Larsen Co.**, 434 Temple St., New Haven, Conn., Owner Builds, Approx. **$1,500,000, 177 RESIDENCES**, Parkview, WALLINGFORD, CONN.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

N. Y., Long Beach—B.A. 2/18—At office City Manager, City Hall, 6 in. water bound macad. base and 2½ in. bit. wearing surf., or one of the following alternates (a) 6 in. concrete base with 2½ in. bit. wearing surf. (b) 6 in. dry bound stone base with 3 in. dry bound penetration macad. and 1 in. bit. wearing surf. Park Ave. from Long Beach to Laurelton Blvds. Plans deposit $25. B. M. Bailey, acting city mgr.

Pa., Shippensburg—B.A. 2/19—Paul B. Noftsker, secy., Shippensburg Boro Auth., Municipal Bldg., 135 E. King St., Contr. 1, sewerage sys. constr.; Contr. 2, general constr. sewage treatment plant, sewage pumping stations and force mains; Contr. 3, plumbing; Contr. 4, heating; Contr. 5 electrical work. Plans deposit $25. Contr. 1, $20, Contr. 2, $10 each, Contrs. 3, 4, and 5, Gannett Fleming Corddry & Carpenter, Inc., 600 N. 2 St., Harrisburg, engr. CD 3/3/47.

N. J., Camden—B.A. 2/20—Purchasing Board, City, City Hall, constr. Delaware River Intercepting Sewer, North Sect., Contr. 12, in public streets. Plans deposit $25. Havens & Emerson, Woolworth Bldg., 233 Broadway, New York, 7, N. Y., engrs. CD 8/13/47.

BIDS ASKED—BUILDINGS

Pa., Creighton—SAND GRADER—Bids Asked—Pittsburgh Plate Glass Co., Grant Bldg., Pittsburgh, (selected list bidders) 3 story, 40x180 ft., steel sand grader bldg. and bay ext. $700,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

PENNSYLVANIA—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,

rejected bids Jan. 18, crushed aggregate—bit. surf. 7,489 ft. roadway 28 ft., 6 ft. wide, L. R. 64235 (1), Westmoreland Co. LB **$321,079**; bit. surf. 7,171 ft., T. R. 88. Beaver Co., LB **$178,275**. CD 1/22, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Joseph A. Lee Constr. Co., 3103 Farragut Rd., Brooklyn 10, N. Y. LB **$233,470**, general constr.;

H. Sand & Co., 291 Broadway, New York 7, N. Y. LB **$297,350**, mechanical work for POWER PLANT TUNNEL at Kings County Hospital Power Plant, Clarkson Ave. between Albany and New York Aves., BROOKLYN, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids Jan. 23. CD 1/17.

Washington Eng. & Constr. Co., Oakland and Penn Sts., Washington, Pa., CA. Approx. **$348,884**, 1 story, basmt., brick concrete, steel, Junior-Senior HIGH SCHOOL, MONONGAHELA, PA. Bd. Educ., Monongahela, Pa. Bids Jan. 14. CD 12/14.

▲† **John A. Johnson Constr. Co.**, 268 41 St., Brooklyn 32, N. Y. CA main BUILDING, MARYLAND. U. S. Eng., First and Douglas Sts. N. W., Wash., D. C. Former contract rescinded and reawarded to second low bidder. CD 10/30, under CA.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **Ga., Fort Benning**—B.A. 2/14—U. S. Eng., Post Office Bldg., Savannah, extending and lining water mains, ENG 09-133-52-66. Plans deposit $20.

BIDS ASKED—BUILDINGS

▲† **Va., Quantico** — BUILDINGS REHABILITATION — B.A. 2/13—Potomac River Naval Command, Naval Gun Factory, Wash. 25, D. C., buildings rehabilitation Marine Corps School. Plans deposit $10.

Miss., Jackson—SCHOOL—B.A. 2/14—Jackson Municipal Separate School Dist., 256 E. Griffith St., addns., alterations to Enochs Junior High School. Mallett & Assoc., 416½ E. Amite St., archts. CD 8/11/50.

SOON LETS CONTRACT—BUILDINGS

▲ **La., Baton Rouge**—PLANT—Esso Standard Oil Co., North Baton Rouge, soon lets contract plant addns., Bodman & Murrell, 1175 Nicholson Dr., archts. CD 10/9/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Tidewater Constr. Co.**, 530 Front St., Norfolk, Va., CA **$194,000** mooring facilities at Naval Minecraft Base, NOY 70643, CHARLESTON, S. C. Navy Dpt., Officer in Charge of Construction, Box 365, Naval Base, Charleston, S. C. Bids Dec. 18. CD 12/31, under LB.

▲† **Warren Bros. Road Co.**, P.O. Box 549, Birmingham, Ala. CA **$1,312,500**. 150,000 squares of articulated concrete mattress at Greenville Casting Field, MISSISSIPPI. U. S. Eng., P.O. Box 60, Vicksburg, Miss. CD 12/7, under LB.

† **Engstrom & Wynn**, 1117 Chapline Ave., Wheeling, W. Va. CA **$767,100**, est. $667,320. Fourth and Buchanan Sts. pumping stations for floodwall, CIVENG 15-029-52-61, KENTUCKY U. S. Eng., 830 W. Broadway, Louisville 3, Ky. Bids Jan. 9, awarded Jan. 16. CD 1/14, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

† **Ivy Constr. Co.**, Charlottesville, Va., LB **$405,463**, emergency HOUSING facilities, Inv. 52-17, CAMP PICKETT, VA. U. S. Eng., foot of Front St., Norfolk, Va. Marcellus Wright & Son, 1005 E. Main St., Richmond, Va., archts. Bids Jan. 22. CD 12/19.

East Carolina Teachers College, Greenville, N. C. rejected bids Oct. 30, LIBRARY, GREENVILLE, N. C. LB **$706,422**. CD 11/5, under LB.

John H. Smalling Co., Macon, Ga., CA, **$316,355**, HOUSING, Projects GA 66-3 and GA 66-4, JESUP, GA. Jesup Housing Auth., Jesup, Ga. Bids Jan. 22. CD 12/28.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects inviolved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

Milton Korotkin, 4220 Ponce De Leon Blvd., Coral Gables, Owner Builds, **$300,000**, RESIDENTIAL DEVELOPMENTS, CORAL GABLES, FLA.

Harned Homes, Inc., 2571 S.W. 37 Ave., Miami, Fla., Owner Builds, **$300,000**, RESIDENTIAL DEVELOPMENTS, MIAMI, FLA.

S. J. Lemoine & Co., P.O. Box 481, Bunkie, La. CA **$304,388**. 40 HOUSING units, Projs. LA 38-1 and LA 38-2, MARKSVILLE, LA. Marksville Housing Auth., Marksville, La. Bids Jan. 21. CD 12/27.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

Mich., Saginaw—B. A. 2/14—City, R. A. Benway, purch. agt., C-396 Sewer, Lake Linton collecting sewer, Holland Ave. Plans deposit $5 refundable, CD 10/11/48.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **U.S. Eng.**, 237 Fourth Ave., Huntington 18, W. Va., cancelled bids to have been opened about Mar. 25, construct railroad to new warehouse facility. Inv. No. ENG 46-022-52-107, at Lockbourne Air Force Base, COLUMBUS, O. CD 1/18.

BUILDINGS

LOW BIDS AND CONTRACTS

J. D. Sullivan Co., Alma, Mich. CA **$300,000**. 2 story, brick, masonry SCHOOL addn., BRECKENRIDGE, MICH. Bd. Educ., J. R. Childs, Breckenridge, Mich. H. E. Beyster & Assoc., 2000 Industrial Bldg., Detroit, Mich., archts. Bids Jan 14. CD 1/11.

Cunningham-Limp Co., 3087 W. Grand Blvd., Detroit, Mich. CA **$400,000**. 1 story, brick, steel, concrete POWER PLANT, FLINT, MICH. A-C Spark Plug Div. General Motors Corp., 7-217 General Motors Bldg., Detroit, Mich. Argonaut Realty Div. General Motors Corp., General Motors Bldg., Detroit, Mich., archts.

▲ **Advance Constr. Co.**, 12201 Twelfth St., Detroit, Mich. Owner Builds. **$2,000,000**. 230 single HOUSES, Howe, Forrest and Annapolis Sts., WAYNE, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Colorado**—CONTROL EQUIPMENT, etc.—B.A. 2/14—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, local control, supervisory control and telemetering carrier-current equipment for Pole Hill Power Plant Colorado-Big Thompson Proj., Spec. DS 3612. Extended date. L. N. McClellan, ch. engr. CD 12/17.

† **Colo., Boulder**—B.A. 2/14—U. S. Atomic Energy Comm., Tabor Room of Brown Palace Hotel, 17 and Tremont Sts., Denver, sanitary sewerage system, Inv. No. 292-42-18, Rocky Flats Proj., near Denver, for Atomic Energy Comm., Santa Fe Operations Office, P. O. Box 54000, Albuquerque, N. M. Approx. $65,000. Extended date. CD 12/12.

Tex., Baytown—B.A. 2/15—City, drainage. $325,000. C. W. Grantham, city engr CD 10/5/50.

† **Montana and North Dakota**—SUB-STATION METERS, etc.—B.A. 2/19—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Glendive, Mont., one lot unmounted meters, instruments, switches and line protective and carrier-current relays, Dawson Co. and Miles City Sub-stations; Fort Peck line at Williston Sub-station, Fort Peck Power Plant, Fort Peck Proj., Spec. DS 3644. L. N. McClellan, ch. engr. CD 9/8/44.

† **North Dakota**—B.A. 2/19—U. S. Eng., Fort Lincoln, P. O. Box 300, Bismarck, reservoir clearing, Stage I, for Garrison Dam and Reservoir Proj., Dunn Co., Inv. 32-015-52-28. CD 1/22, under LB.

Tex., Kilgore—B.A. 2/19—City, water supply wells. $125,000. A. P. Noyes, Kilgore, engr. CD 11/9.

† **Tex., Sherman**—HYDROGEN and OXYGEN BLDG.—B.A. 2/19—U. S. Eng., Box 61, Tulsa 2, Okla., hydrogen and oxygen bldg. at Perrin Air Force Base. Approx. $150,000. Extended date. CD 1/23.

Tex., Sulphur Springs—B.A. 2/19—City, water treatment plant. $75,000. Plans deposit $25. Wyatt C. Hedrick, 904 Fort Worth Ave., Dallas, engr.

BIDS ASKED—BUILDINGS

▲ **Tex., Port Neches**—HIGH SCHOOL—B.A. 2/19—Port Neches Independent School Dist., Port Neches, 107,000 sq. ft. rein.-con., steel high school, $1,250,000. Herbert Voelcker & Assoc., 1202 Dennis Ave., Houston, archts. CD 3/9/49.

▲ **Tex., Orange**—PLANT—Bids Asked—Solvey Process, Div. of Allied Chemical & Dye Corp., 61 Broadway, New York, N. Y., ethylene plant (glycol and oxide). $5,000,000. CD 1/16.

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HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Hahner & Foreman Constr. Co., 121 N. Waco St., Wichita, Kan. **$325,984.** Item 1, Warehouse No. 0, and Item 2, automotive pool parking shelter, WICHITA, KAN. Boeing Airplane Co., Wichita Div., RFD 5, Wichita, Kan. Wilson & Co., 223 N. Santa Fe St., Salina, Kan., engrs.

† **Simpson Electric Co.**, 920 E. 15 St., Cheyenne, Wyo., LB, $164,600, electrical distr. and fence and street lighting, Inv. No. 292-52-17;

Henry W. Miller Elec. Co., 415 S. 18 St., Omaha, Neb., LB, **$81,500,** protective electric alarm and communications system, Inv. 292-52-16, Rocky Flats Proj., BOULDER, COLO. U. S. Atomic Energy Comn., Contg. Officer, Box 5400 Albuquerque, N. M. Bids Jan 15.

BUILDINGS

LOW BIDS AND CONTRACTS

A. H. Haeseler Building & Constr. Co., 2346 Palm St., St. Louis 7, Mo. CA 1 story, 23x86 ft., 41x100 ft., brick, concrete FREIGHT TERMINAL, OFFICE and SERVICE BLDG., 1225 Carr Lane Ave., ST. LOUIS, MO. Hoover Motor Express Co., Inc., 1101 S. 6 St., St. Louis 4, Mo., Greer, Holmquist & Chambers, Stallings Bldg., Birmingham, Ala., and Campbell A. Scott, 318 E. Swon Ave., Webster Groves, 19, Mo., archts.

▲ **Refinery Engineering Co.**, Wright Bldg., Tulsa, Okla., CA, $1,700,000. rebuilding, revamping hydrofluoric acid alkylation unit PLANT, DUNCAN, OKLA. Sunray Oil Corp., Duncan, Okla.

▲ **Ponsford Brothers**, 915 E. Missouri St., El Paso, Tex. CA, $1,266,480. Tex. 3-6, 28 HOUSING unit bldgs., 150 units, EL PASO, TEX. El Paso Housing Auth., El Paso, Tex. Bids Dec 29. CD 1/7, under LB.

C. Grady Gates, Jr. and **Henry C. Kersey**, Farmers Branch, Tex., Owner Builds. **$325,000.** Proj. 2, 45 DWELLINGS, FARMERS BRANCH, TEX. CD 11/23.

Marshall Constr. Co., 4009 Center St., Houston, Tex., CA, $342,042, AUDITORIUM, GALENA PARK, TEX. Galena Park Independent School Dist., Galena Park, Tex. Bids Nov 20, awarded Jan 21. CD 11/5.

Nordberg Plumbing Co., 419 Cotton Exchange Bldg., Dallas, Tex., CA, $448,330. electric GENERATOR unit and auxiliaries, GREENVILLE, TEX. City, Greenville, Tex. Bids Sept. 25, awarded Jan. 18. CD 10/3 under LB.

Wm. G. Farrington Constr. Co., 1719 Sunset Blvd., Houston, Tex., CA. Approx. $300,000. 15 DWELLINGS, HOUSTON, TEX. Wm. G. Farrington, 1719 Sunset Blvd., Houston, Tex. CD 10/9/50.

Robertson Constr. Co., 745 First Natl. Bank Bldg., Houston, Tex., CA. $335,000. 50 DWELLINGS, HOUSTON, TEX. Chocolate Bayou Estates, c/o W. E. Robertson, Sr., 745 First Natl. Bank Bldg., Houston, Tex. CD 6/26/50.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Washington**—TRAILER PARK IMPRVS.—B.A. 2/15—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, 2 laundry bldgs., grading, surfacing, utilities, etc. for addn. to trailer park at Chief Joseph Dam, Bridgeport, CIVENG 45-108-52-31. CD 1/18.

Calif., San Diego—B.A. 2/19—City, City Hall, University Heights North Reservoir. CD 1/5/51.

† **Wash., Moses Lake**—STORAGE BLDG., etc.—B.A. 2/19—U. S. Eng., City and County Airport, Walla Walla, paint and dope storage bldg. and approach pavement at Larson Air Field, Inv. 45-164-52-17. CD 11/5.

Calif., Pacific Grove—B.A. 2/20—City, City Hall, sewage disposal plant, etc. Plans deposit $30. Harry N. Jenks, 63 Crescent Dr., Palo Alto, engr. CD 4/19.

† **Washington**—B.A. 3/18—U. S. Eng., 4735 E Marginal Way, Seattle, 4, Wash., two 480 volt power centers for Chief Joseph Dam, Inv. 52-33, Bridgeport. CD 9/12/44.

BIDS ASKED—BUILDINGS

† **Calif., Fort Ord**—BUILDINGS—B.A. 2/18—Contg. Office, Dpt. Army, Fort Ord, rehabilitate Bldgs. T-1436, T-1460, automotive school, Inv. 04-351-52-38.

Calif., Menlo Park—SCHOOL—B.A. 2/18—Menlo Park Elementary School Dist., Menlo Park, Oak Knoll Elementary School. Kingsford Jones, 611 Menlo Ave., Menlo Park, archt. CD 12/13.

Calif., Tracy — BUILDINGS — B.A. 2/19 — State Div. Architecture, P. Wks. Bldg., Sacramento, buildings for Farm Group No. 1 at Deuel Vocational Institution.

Calif., Antioch—SCHOOL—B.A. 2/20—Antioch-Live Oak City Unified School Dist., Antioch, John Marsh Elementary School, $300,000. Plans deposit $25. A. V. Saph, Jr., 693 Mission St., San Francisco, structural engr. Wurster, Bernardi & Emmons, 402 Jackson St., San Francisco, archts. CD 9/11.

Calif., Burlingame—SCHOOL—B.A. 2/25—Burlingame Elementary School Dist., 701 Paloma Ave., Intermediate School on Mills Estate, extension of Quesada Way. Plans deposit $50. Hertzka & Knowles, 85 Post St., San Francisco, archts. CD 8/1.

SOON LETS CONTRACT—BUILDINGS

Calif., Azusa — ENGINEERING — Aerojet Engineering Corp., 332 N. Irwindale Ave., soon lets contract engineering bldg. $250,000. CD 1/9.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Freigang Constr. Co., 10310 Gravelly Lake Dr. S.W., Tacoma, Wash., LB, **$92,472,** sewage treatment plant at Western State Hospital, STEILACOOM, WASH. State Dpt. P. Institutions, Olympia, Wash. Bids Jan/22.

† **Freigang Constr Co.**, 10310 Gravelly Lake Dr. S.W., Tacoma, LB, **$84,911,** est $74,867, masonry motor maintenance shop, McChord Air Force Base, Inv. 52-135, TACOMA, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids Jan. 22. CD 12/28.

W. McCray & Troxell, 2370 Fairview Ave. N., Seattle, Wash., LB. **$59,285,** 906 ft. 32x1¼ in steel pipe across Wapato waterway, TACOMA, WASH., City, City Hall, Tacoma, Wash. CD 8/2/45.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,

Griffith Co., 1060 S. Broadway, Los Angeles, Calif., LB, **$2,307,503,** grading, paving 1.7 mi., constr. 6 bridges on Ramona Freeway between Jackson and Rosemead Blvd., Los Angeles Co. Bids Jan. 17. CD 12/31

CALIFORNIA—State Div. Hys., P. Wks. Bldg., Sacramento,

C. B. Tuttle Co., 268 Belmont Ave., Long Beach, Calif., LB, **$412,863,** 0.5 mi. highway constr. and 3 rein.-con. bridges in San Luis Obispo, San Luis Obispo Co. Bids Jan 16. CD 12/31

CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles,

R. M. Price Co., 2285 Pinecrest St., Altadena, Calif., CA, **$508,656,** 2 rein.-con. bridges, approaches, across Compton Creek on Los Angeles River Freeway across Del Amo Blvd. and Compton Creek near Long Beach, Los Angeles Co. Bids Dec. 20, awarded Jan. 17. CD 12/31, under LB.

† **Dorance Builders, Inc.**, Inglewood, Calif., LB, **$189,440.** bldgs., utilities, roads, at U. S. Naval Missile Center, NOY 71325, Spec. 32894, POINT MUGU, CALIF. U. S. Naval Air Missile Test Center, Point Mugu, Calif. Bids Jan. 15. CD 1/4.

BUILDINGS

LOW BIDS AND CONTRACTS

† **Mowat Bros.**, 2833 Eastlake Ave., Seattle, Wash., CA, **$634,040,** BARRACKS, WARDS and HOSPITAL facilities at Madigan Army Hospital, Inv. 52-86, TACOMA, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids Dec. 18. CD 12/27, under LB.

A. J. Marek, 10529 Washington Blvd., Lennox, Calif., LB **$383,167,** North Primary SCHOOL, LENNOX, CALIF. Lennox School Dist., 10319 S. Firmona Ave., Lennox, Calif. Bids Jan. 8. CD 12/28.

▲ **Pacific Coast Builders**, 2530 18 St., San Francisco, Calif., CA, **$1,018,750,** Las Palmas Junior High SCHOOL, NORTH SACRAMENTO, CALIF. Grant Union High School Dist., North Sacramento, Calif. Bids Dec. 19. CD 12/31, under LB.

▲ **Howard J. White, Inc.**, 44 Encina Ave., Palo Alto, Calif., CA, **$1,101,138,** Wilbur Elementary SCHOOL, PALO ALTO, CALIF. Palo Alto City Unified School Dist., P.O. Box 149, Palo Alto, Calif. Bids Jan. 10, awarded Jan. 17. CD 1/18, under LB.

Jacks & Irvine, 620 Market St., San Francisco, Calif., LB, **$360,111,** milk and ice cream processing PLANT, Mission St., SAN FRANCISCO, CALIF. Spreckles Russell Dairy Co., 8 and Bryant Sts., San Francisco, Calif. Bids Jan. 15. CD 12/19.

ALASKA

BIDS ASKED—BUILDINGS

† **Alaska, Fort Richardson**—SCHOOL—B.A. 2/20—U. S. Housing & Home Finance Agency, New World Life Bldg., Seattle 4, Wash., 2 story, 64x336 ft. and 50x70 ft. rein.-con. school. Plans deposit $50. Manley & Mayer, Anchorage, archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Denali Constr. Co.**, Anchorage, Alaska, CA **$2,108,000.** est $2,174,706, automotive maintenance facility, S-95-507-52-10, Elmendorf Air Force Base, ALASKA, U. S. Eng. (APO 942, c/o PM, Seattle, Wash.) Anchorage, Alaska. Bids Jan. 8. CD 1/15, under LB.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Que., Louis de Courville—B.A. 3/3—L. P. Laplante, secy. Municipality, aqueduct and sewer in Royale Ave. Approx. $75,000. Marc Gilbert, 31 Mac Mahon St., Quebec City, engr. CD 1/8.

BIDS ASKED—BUILDINGS

Newfoundland, St. John's—HOUSING—B.A. 2/12—Central Mortgage & Housing Corp., 1032 Gottingen St., Halifax, N. S., housing development, 42 bldgs. with 152 housing units. Plans deposit $100. P. J. Mangan, c/o owner, regional supt. CD 2/11/49.

▲ **Ont., Cobourg**—WAREHOUSES—B.A. 2/12—Defence Construction (1951) Ltd., 441 Queen's Quay W., Toronto, Ont., 4 ordnance warehouses at new ordnance depot. Plans deposit $100. Nicholas Fodor, 25 Roxborough St. E., Toronto, R. P. Opie, c/o owner, regional engr., and C. C. Parker & Assocs., 63 John St. S., Hamilton, engrs. Robert D. Schoales, 250 Cathcart St., London, archts. CD 8/7.

Ont., Toronto—PLANT—B.A. 2/18—Swift Canadian Co. Ltd., 1960 St. Clair Ave. West, 3 and partly 4 story, 80x124 ft. concrete, brick Margarine Plant addn., Approx. $100,000.

Que., St. Vincent de Paul—ADMINISTRATION—B.A. 2/26—Purch. Agt., Dpt. Justice, Ottawa, Ont., Administration Bldg., Federal Training Centre, Approx. $350,000. Plans deposit $50.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ S. A. Magnacca, Brandon, Man., Owner Builds, $2,000,000, 94 HOUSES between 20 and 24 Sts. and Mac Tavish and College Aves., 70 HOUSES between 1 and 18 Sts., and low-cost HOUSES in South Brandon between 1 and 4 Sts., BRANDON, MAN. CD 2/18/49.

George Hardy Ltd., 163 Wicksteed Ave., Toronto, Ont., CA. $500,000, central heating plant at new medical RESEARCH CENTER, at DOWNSVIEW, ONT. Defence Construction Ltd., 441 Queen's Quay W., Toronto, Ont. Awarded Jan. 22. CD 9/20.

▲ Courtland Park Housing Corp., 610 St. James St. W., Montreal, Que., Owner Builds, $4,000,000, 60 HOUSING units, St. Joseph St., bounded by Metropolitan Blvd., DORVAL, QUE.

▲ H. I. Fanaberia, 4 Hudson Rd., Mount Royal, Que., Owner Builds, $2,700,000, 92 DWELLINGS, W. Shrebrooke St., MONTREAL, QUE. G. Shubin, 1415 St. Mark St., Montreal, Que., archt.

PROPOSED PROJECTS

WATER SUPPLY

Fla., Cocoa—City, water pumping station at Lake Poinsett and filtration plant, $887,000. CD 3/11/46.

Idaho, Boise—Boise Water Corp., 633 Idaho St., water collector sys., exten. distr. sys. $325,000.

▲ Ill., Bloomington—City, 5 m.g. filter plant, new pumping station, storage tank, cleaning and repairing water mains, etc. $1,120,000. Alvord, Burdick & Howson, 20 N. Wacker Dr., Chicago, consult. engrs.

▲ Mass., Worcester—City, Dpt. P. Wks., City Hall, Quinapoxet Dam, Holden, $2,000,000; water sys. imprvs., Holden and Worcester, $1,500,000. Metcalf & Eddy, 1300 Statler Bldg., Boston, consult. engrs. CD 1/12/50.

N. C., North Wilkesboro—City, City Hall, bond election Feb. 19. WW imprvs. $808,000.

▲ Okla., Tulsa—City, City Hall, bond election Feb. 26, WW extens. $7,600,000. W. R. Wooten, city engr. CD 2/3/48.

SEWERS, WASTE DISPOSAL

▲ Ill., Chicago—City, City Hall, sewer projects of the Central South Side Sewer Project for 1952
W. 70 St. from May to Sangamon Sts.;
Stewart Ave. from 69 to 72 Sts.;
Union Ave. from 69 to 70 Sts.;
May St. from 70 to 71 Sts.;
Ellis Ave. from 82 St. to 83 St.;
W. 70 St. from Union Ave. to Sangamon St.;
Throop St. from 67 to 69 Sts.;
W. 66 from Racine Ave. to Sangamon St.;
W. 68 St. from Loomis St. to Sangamon St.
Total est. $6,000,000. CD 2/8.

▲ Okla., Tulsa—City, City Hall, bond election Feb. 26, sanitary sewer exten. $5,750,000; storm sewer exten. $3,272,000. W. R. Wooten, city engr. CD 2/3/48.

▲ Wash., Walla Walla—City, City Hall, sewage disposal plant addn., $525,000; facilities for industrial waste, $525,000. H. L. Thompson, Spalding Bldg., Portland, Ore., consult. engr. CD 3/22/50.

BRIDGES

Illinois and Missouri—City of Madison c/o Cecil Dant, bridge mgr., City Hall, Madison, Ill., and 11000 Riverview Dr., St. Louis, 15, Mo., imprvs., repairs, etc. to Chain of Rocks Bridge across Mississippi River between Madison, Ill. and St. Louis, Mo., incl. resurf. roadway, automatic signal and automatic tool systems, etc. $800,000.

▲ Ky., Louisville—City, overpass railroad crossing at Preston and Barrett Sts. $3,200,000. W. W. Sanders, city engr. CD 11/10/50.

Okla., Tulsa—City, City Hall, bond election Feb. 26, grade separations, $950,000. W. R. Wooten, city engr.

STREETS AND ROADS

▲ CONNECTICUT—State Hy. Comr., State Hy. Office Bldg., Hartford,

Hartford Co.—about 3½ mi. new expressway, 4 lane divided hy., 9 bridges or underpasses from North Meadows Expressway to Poquonock Ave., Windsor, $3,000,000.

▲ GEORGIA—State Hy. Dpt., Atlanta.

Bibb Co.—relocating 1.7 mi. Macon-Gray Rd., $150,000. relocating U. S. 41 North of Macon, $750,000. four-lane highway from U. S. 41 south of Macon to Warner Robins, $1,375,000. CD 12/9/47.

▲ N. C., Winston-Salem—City, City Hall, express highway through downtown business sect. $8,163,000

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Smith, Dibble & Co., 1420 Lady St., Columbia, S. C., consult. engrs.

OKLAHOMA—State Hy. Dpt., Capitol, Oklahoma City, Zone 5,

LeFlore Co.—bit surf. 7 mi. road to Lake Wister. $450,000. G. H. Bittle, c/o owner, engr. CD 10/16/50.

Okla., Norman—City, City Hall, traffic arteries. $300,000. E. H. Durkee, c/o owner, engr.

▲ **Okla., Tulsa**—City, City Hall, bond election Feb. 26, street imprvs. $3,395,000. W. R. Wooten, city engr. CD 11/29/45.

▲ **Wis., Milwaukee**—City, Sixth St. traffic interchange, $1,600,000, Ammann & Whitney, 724 E. Mason St., Milwaukee, Zone 2, consult. engrs., Lloyd D. Knapp, city engr.

EARTHWORK, WATERWAYS

▲ † **Florida**—U. S. Eng., P.O. Box 1169, Mobile 7, Ala., reservoir clearing for Jim Woodruff Dam, Chattahoochee $5,000,000.

▲ † **Oklahoma-Arkansas**—U. S. Eng., Box 61, Tulsa, bank protection work on Arkansas River from Wilson's Rock, Okla. to Fort Smith, Ark. $6,800,000. CD 10/15/45 under Oklahoma, and 12/24/43 under Arkansas.

▲ **British Columbia**—POWER DEVELOPMENT—British Columbia Power Comn., Vancouver, power development at Quesnel to supply new pulp mill, $16,000,000. CD 2/21/49, under B. C., Quesnel.

AIRPORTS

▲† **Me., Presque Isle**—HOUSING—Dpt. Air Force, Presque Isle, plans by Frost-Kandzse Assoc., 60 State St., Boston, Mass., three hundred 1 story, housing units, MEI-D-1, $1,500,000. CD 12/28.

▲ **Mo., Sedalia**—AIRPORT FACILITIES—U.S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., plans by J. Gordon Turnbull, Inc., 112 E. 10 St., Kansas City 6, Mo., and Howard-Needles-Tamman & Bergendoff, engrs. and archts., 921 Walnut St., Kansas City 6, Mo., imprvs. at Sedalia Air Force Base, $19,000,000. CD 7/5/51.

▲† **Okla., Altus**—AIR BASE—U. S. Eng., Box 61, Tulsa, Zone 2, plans by Hudgins, Thompson, Ball & Assoc., 1100 W. Main St., Oklahoma City, engrs.-archts., base communications, base operations and control tower, photo laboratory bldg. units. Approx. $300,000; construct addnl. roads, parking areas and paving same. Approx. $75,000; renovating and expanding water sys. Approx. $50,000; maintenance shops, Approx. $250,000; 75-bed hospital and dental clinic, Approx. $300,000 (if permanent); bakery and commissary, Approx. $90,000; railway sidings, Approx. $60,000; hangars, Approx. $200,000; mess halls, Approx. $300,000; barracks, Approx. $350,000; bachelor officers quarters and family housing units, Approx. $450,000, all foregoing at Altus Air Force Base. CD 9/24.

▲† **Okla., Ardmore**—AIR BASE—U. S. Eng., Box 61, Tulsa, Zone 2, water lines, facilities, Approx. $40,000; misc. constr. Approx. $500,000; administration, academic, training center, dispensary and supporting facilities units, Approx. $400,000; lighting airfield and base areas, Approx. $75,000; fueling sys. and servicing facilities. Approx. $100,000; shops, Approx. $200,000; warehousing, Approx. $250,000; housing or barracks, Approx. $300,000 for reactivation Ardmore Air Force Base. CD 6/27.

▲† **Tex., Abilene**—AIR BASE—U. S. Eng., 1127 Texas & Pacific Bldg., Fort Worth, water lines, facilities, Approx. $45,000; sanitary sewers, Approx. $65,000; shops, Approx. $100,000; road constr., reconditioning, paving, Approx. $70,000; warehousing or storage, Approx. $300,000; runways, Approx. $300,000; administrative and operation facilities, Approx. $300,000; paving in areas other than runways, Approx. $150,000; fueling system, Approx. $100,000; airport lighting, Approx. $75,000; misc. constr. Approx. $500,000; barracks or housing, Approx. $300,000, for Tye Air Force Base.

▲ **Tex., Dallas**—AIRPORT—City, City Hall, Main and Harwood Sts., future airport expansion (mostly at Love Field). Several Million. James C. Buckley, Inc., 331 Madison Ave., New York, N. Y., consult. engr. CD 11/21.

▲ **Sask., Saskatoon**—AIRPORT DEVELOPMENT — Dpt. Transport, Ottawa, Ont., airport development incl. exten. runways and taxistrips at local airport. Approx. $2,500,000. CD 10/31/49.

LATIN AMERICA

Mexico, Monterey—State Govt., Palacio del Estado, Monterey, N. L., plans childrens hospital. $500,000.

PUBLIC BUILDINGS

▲ **Ala., Huntsville** — HOUSING — Huntsville Housing Auth., Huntsville, housing, Projects Ala. 47-3 and Ala. 47-4 $2,000,000.

▲ **Ariz., Phoenix**—HOUSING—Maricopa County Housing Auth., P.O. Box 150, plans by Lesher & Mahoney, Title & Trust Bldg., 450 low rent housing units. $4,000,000. Johansen & Girand, First National Bank Bldg., engrs. CD 2/7/50.

▲ **Ark., El Dorado**—SCHOOL IMPRVS.—El Dorado School Dist. 15, El Dorado, bond election Mar. 15, school imprvs. $1,500,000.

▲ **Calif., Richmond**—SCHOOLS—School Dist., incl. Richmond, San Pablo, Kinsington, El Cerrito, El Sobrante, Pinole and Hercules, will vote $7,000,000 bonds Feb. 29, constructing 4 Junior and Senior High Schools and school addns.

▲ **Ga., Marietta**—HOUSING—Marietta Housing Auth., Marietta, plans by Bothwell & Nash, 208 Roswell St., 125 unit, housing, Project GA 10-4. $1,000,000.

Ind., New Haven—SCHOOL—Bd. Educ., New Haven, plans by LeRoy Bradley, 1115 S. Clinton St., Fort Wayne, Elementary and Junior High School on 250 acre site at end of Pettit Ave. near Southeast Anthony Wayne Blvd. $600,000. CD 10/4.

Kan., Overland Park—SCHOOL—Overland Park and Hickory Grove School Dists., School Bd., $799,000 bond election Feb. 2, school, 71 and Lamar Sts. Kivett & Myers, 1016 Baltimore St., Kansas City, Mo., archts.

La., Lake Charles—SCHOOL—Calcasieu Parish School Bd., Lake Charles, voted $750,000 bonds high school, CD 12/14.

▲ **Mass., Framingham**—HOUSING—Framingham Housing Auth., Admin. Bldg., Arsenal Rd., plans by Glaser & Gray, 105 Newbury St., Boston, 125 housing units. $1,500,000. Sidney F. Hooper, 16 Court St., Boston, consult. engr. CD 12/4.

Mass., Lynn—HOSPITAL—Lynn Hospital, 212 Boston St., plans by Markus & Nocka, 251 Columbus Ave., Boston, hospital addn., alterations, $600,000.

Mass., Shelburne Falls—SCHOOL—Towns of Buckland, Colrain, Heath and Shelburne, Fred B. Dole, chn. comm., high school, $500,000.

Mich., Buchanan—SCHOOL—Bd. Educ., Buchanan, plans by Warren S. Holmes Co., 2200 Olds Tower Lansing, 2 story, bsmnt., brick, steel high school. $700,000.

▲ **Mich., Dearborn**—SCHOOL—City, James A. Lewis, supt. Schools, plans by Jahr-Anderson Assoc., Inc., 21904 Michigan Ave., brick, steel, concrete Smith Junior High School. $1,000,000 CD 12/28/50.

▲ **Mich., Escanaba**—SCHOOL—Bd. Educ., Escanaba, plans by Perkins & Will, 309 W. Jackson Blvd., Chicago 6, Ill., 1 and 2 story, bsmnt., elementary school and Senior High School. $1,000,000. CD 9/1/50.

▲ **Mich., Kalamazoo**—HOSPITAL—State, A. N. Langius, dir. State Bldg. Dpt., Lansing, plans by Lee and Kenneth C. Black, 706 Capitol Savings & Loan Bldg., Lansing, brick, steel, concrete tuberculosis hospital. $2,000,000. CD 9/19/50.

Mich., Lansing—SCHOOL—State, A. N. Langius, dir. State Bldg. Dpt., Lansing, plans by Lee and Kenneth

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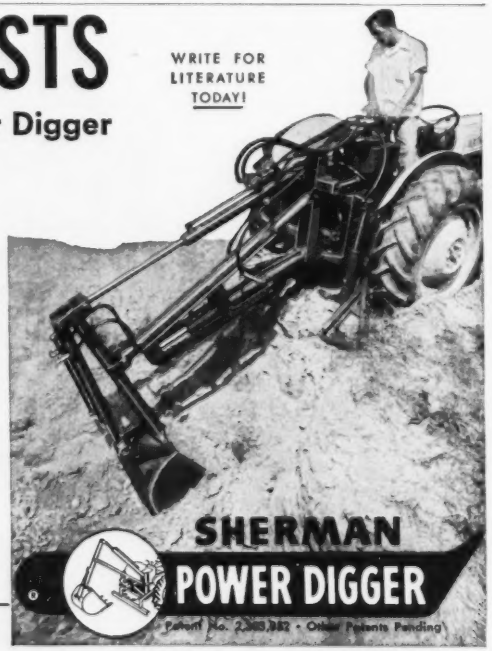

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C. Black, 706 Capitol Savings & Loan Bldg., 200x300 ft., brick, steel, concrete Vocational School for the Blind. $500,000. CD 3/26/43, under Michigan.

▲ Mich., Lapeer—HOSPITAL—State, A. N. Langius, dir State Bldg Dpt. Lansing, plans by Frantz & Spence, 118 N Washington St. Saginaw brick, steel, concrete 200-bed hospital, State Home and Training School. $2,365,000. CD 8/25/44.

Mich., Ludington—SCHOOL—Ludington School Dist., Ludington, plans by Louis C Kingscott & Assoc., 511 Monroe St., Kalamazoo. 2 story, bsmt., brick, concrete Junior High School. $750,000. CD 11/16.

Mont., Columbia Falls—SCHOOL—Bd. Educ. School Dist. 6, plans by G. D. Weed, Kalispell, school $664,520. CD 12/6.

N. C., Kenansville—HOSPITAL—Duplin Co., Kenansville plans by Leslie N. Boney & Sons, 120 S. 5 St., Wilmington, hospital. $943,000. CD 11/19.

O., Barberton—CITY HALL—City, City Hall, 585 W. Tuscarawas St., plans by Wagner & Luxmore, Permanent Bldg., Akron. city hall $500,000. CD 11/16/50.

O., Barberton—HOSPITAL—City, City Hall, 585 W. Tuscarawas St., plans by Samuel Hannaford & Sons, Dixie Terminal Bldg., Cincinnati, hospital, Citizens Hospital Bldg. $750,000. CD 11/13.

▲ O., Columbus—DORMITORY—Ohio State University, N. High St., plans by Howard Dwight Smith, 1950 Arlington St., steel, brick, concrete women's dormitory, extens of Mack-Canfield Housing unit to be known as "12th Ave Group". $2,500,000.

O., Toledo—HIGH SCHOOL—Bd. Educ., Adams Twp. School Dist., Reynolds Rd., Zone 7, high school. $800,000.

Okla., Ponca City—SCHOOL—Bd. Educ., c/o Mrs. Jessie Washam, clk., 613 E Grand St., plans by Wm. R. Brown, 1st. Natl. Bank Bldg., addn. to school admin. bldg. and expanding Junior High School. $500,000.

† Pa., Aliquippa—HOSPITAL—Aliquippa Hospital, Com., 223 Franklin Ave., plans by Mays & Chatfield, 423 W. Chelten Ave., Phila., hospital. $1,800,000. G. F. Berkmyer, Boro Bldg., consult. engr. CD 1/20/50.

▲ Pa., New Castle—SCHOOLS—School Bd., New Castle, bond election Apr. 22, new grade schools and remodel present bldgs. $3,000,000. CD 4/26/51.

▲ S. C., Greenville—AUDITORIUM—City, City Hall, 214 S. Main St., plans by Cunningham & Walker, 129 River St., and Walter W. Cook & Assoc., 9003 Denton Dr., Dallas, Tex., memorial auditorium. $1,100,000.

▲ Va., Blacksburg — LIBRARY — Virginia Polytechnic Institute, Blacksburg, library, $1,000,000.

▲ Va., Williamsburg — DORMITORY, etc. — College of William & Mary, Williamsburg, mens dormitory, $600,000; classroom, $500,000. CD 4/4/51, under LB.

▲ Wash., Walla Walla—SECURITY—State, Dpt. P. Institutions, Olympia, plans by J. W. Maloney, Central Bldg., Seattle, Zone 4, minimum security bldg. at State Penitentiary, $1,500,000. CD 1/25/45.

W. Va., Charleston—PARKING GARAGE—State, Capitol Bldg. plans by Cass Gilbert, Jr., Charleston, W. Va., auto parking garage, $500,000.

▲ W. Va., Winfield—SCHOOL IMPRVS.—Putnam Co. Bd. Educ., Winfield, bond election May 2, school imprvs. $1,000,000.

Man., Winnipeg—NURSES RESIDENCE—Misericordia Hospital Bd., 20 Sherbrooke St., Winnipeg, Man., plans by A. E. Cubbidge, 405 Montreal Trust Bldg., 7 story, 40x200 ft., reinforced steel, concrete, brick nurses residence. Approx. $500,000.

▲ Ont., Kingston—HOSPITAL—Kingston General Hospital Bd., Kingston, hospital addns. Approx. $2,500,000.

Ont., Mitchell—SCHOOL—Mitchell District High School Bd., Lloyd Edighoffer, chn., Mitchell, school, $540,000.

▲ Ont., Ottawa—HOSPITAL—Civic Hospital Bd., Carling Ave., plans by J. A. Ewart, 165 Sparks St., nurses training school, enlargement of nurses residence at Civil Hospital. Approx. $1,000,000. Total expansion program $5,000,000 five-year period). CD 12/31.

▲ Que., Three Rivers—CITY HALL—City, J. A. Mougrain, mayor, plans by J. L. Caron, 302 Bonaventure St., city hall. Approx. $1,500,000. R. Lord, c/o owner, engr. CD 9/19/46.

COMMERCIAL BUILDINGS

Ga., Moultrie—CHURCH—First Baptist Church, Moultrie, plans by Harrison Gill & Assocs., Chattanooga Bank Bldg., Chattanooga, Tenn., church, $500,000.

▲ La., New Orleans—DORMITORIES—Tulane University c/o Clarence Sheps, comptroller, 6823 St. Charles Ave., three 3 story, brick, rein.-con. dormitories, LA 16-CH-2. $1,830,000.

▲ Me., Portland—MEDICAL CENTER—Trustees Maine Eye & Ear Infirmary, 79 Bramhall St., plans by Voorhees-Walker-Foley & Smith, 101 Park Ave., New York, N. Y., medical center, Arsenal St., $4,000,000. CD 2/2/51.

▲ Mass., Boston—CULTURAL—Greek Cathedral Church Evangelismos, Chas. Malictis, pres., 514 Parker St., Roxbury, 3 story, bsmnt. cultural bldg., gymnasium, etc. $1,000,000.

Mich., Charlevoix—HOSPITAL—Bd. Trustees Charlevoix Hospital, Charlevoix, plans by Gordon Cornwell, Anderson Bldg., 2 story, brick, steel hospital, $600,000. CD 3/6/51.

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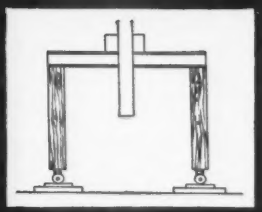

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▲ **Mich., Detroit**—SCHOOL—Catholic Diocese of Detroit, 1234 Washington Blvd., plans by McGrath & Dohman, 2631 Woodward St., 3 story, bsmt., brick, steel, concrete Notre Dame High School. $2,100,000.

Mich., Grand Rapids—HOSPITAL—St. Mary's Hospital, Leon W. Harrington, pres. Bd. Trustees, 250 Cherry St. S. E., plans by Mead & Norton, 341 Michigan Trust Bldg., 8 story, brick, steel hospital, $950,000.

▲ **Minn., Rochester**—HOTEL—Kahler Hotel, Rochester, plans by Ellerbe & Co., E. 505 First National Bank Bldg., St. Paul, 12 story hotel addn. $3,000,000. CD 2/21/45.

Mo., Independence—TELEPHONE EXCHANGE—Southwestern Bell Telephone Co., c/o H. H. Mudd, div. mgr., 11 and Oak St., Kansas City 6, Mo. telephone exchange bldg., 215 N. Spring St., $671,000.

O., Akron—CHURCH—SANCTUARY and EDUCATIONAL—First Evangelical & Reformed Church, 222 S. Broadway, plans by Hensel A. Fink, 1701 Arch St., Phila., Pa., church, sanctuary and educational bldg., W. Exchange St. and Work Dr. $500,000. CD 8/4/49.

▲ **O., Alliance**—FINE ARTS, etc.—Mount Union College, Alliance, plans by Mellenbrook, Foley & Scott, 26 Front St., Berea, Fine Arts-Little Theater Bldg., science bldg., women's dormitory and dining room, men's dormitory, $2,000,000. CD 12/6/46.

O., Columbus — HOUSING — Edward Tonti, 253 S. Southampton Ave., housing, 375 houses and apartments, incl. approx. 250 single houses and approx. 125 apartment units, on 76 acre tract, Demorest Rd. and Sullivant Ave.

▲ **O., Middletown**—HOSPITAL—Middletown Hospital, Logan T. Johnston, pres. Bd. Trustees, Middletown, 100-bed hospital addn. $1,500,000.

▲ **Okla., Tulsa**—HOUSES—Tulsa Homes Corp., Philtower Bldg., 850 houses for Douglass Aircraft employees. $7,000,000. Wood & Craig, Philtower Bldg., consult. engrs.

▲ **Tex., Dallas**—HOTEL—Dallas Hotel Co., Commerce and Akard Sts., hotel. $2,000,000.

▲ **Tex., Houston**—HOMES—Angelo Mascari, 731 E. Friar Tuck St., plans by J. Hyams, 807 Nadine St., Proj. 1, construct unit of Paradise Homes, $300,000; Proj. 2, 28 brick dwellings, in an extens. of Gardenia St., $340,000; Proj. 3, 35 masonry dwellings, concrete slab fdn., in upper Oak Forest area, $375,000; Proj. 4, construct number of dwellings, various types, various locations, $350,000.

▲ **Tex., Houston**—DWELLINGS—J. S. Norman Building Corp., c/o J. S. Norman Jr., 4815 Richmond Rd., Job. 1, 45 dwellings, $405,000; Job. 2 55 dwellings, $605,000; Job 3, 50 dwellings, $600,000, foregoing for 1st part 1952; Job 4, 42 dwellings, $546,000; Job 5, 48 dwellings, $672,000 foregoing for late 1952 all in 2nd sect. of Ridgecrest Addn. in Spring Branch area.

Tex., Houston — COMMUNITY CENTER — Owner, c/o Kenneth Franzheim, archt., 2402 Crawford St., Dallas, community center, Yale Blvd. and 20 St. $750,000.

Tex., New Braunfels—HOSPITAL—Howard C. McKenna & Assoc., New Braunfels, plans by Wm. R. O'Connell, 305 Perry-Brooks Bldg., Austin, 40-bed hospital. $500,000. W. E. Simpson Co., 945 Milam Bldg., San Antonio, consult. engr. CD 1/18.

▲ **Tex., Waco**—DORMITORY—Baylor University, c/o Ray J. McKnight, Fin. vice pres., Waco, 3 story masonry dormitory, Tex. 41-CH-6. $1,000,000.

▲ **Que., Ville St. Laurent**—HOUSING—Louis B. Magil, 5275 Queen Mary Rd., Montreal, 200 housing units, Church St., west of St. Aubin St. Approx. $2,000,000.

INDUSTRIAL BUILDINGS

Ill., Lemont—FACTORY—Brad Foote Gear Works, 1309 Cicero St., Cicero, 45,000 sq. ft. factory, near here. $500,000.

▲ **Mass., Springfield**—WAREHOUSE and INDUSTRIAL—Hampden Park Development Corp., 1421 Main St., 45 acre warehouse and industrial bldg. development, Hampden Park, $1,000,000.

Mo., Independence—PLANT, etc.—Allis-Chalmers Mfg. Co., c/o W. E. Dillon, br. mgr., 1224 W. 12 St., Kansas City, Mo., 60,000 sq. ft. plant, warehouse, offices, sales training and auditorium for 125 seating, etc., on 12 acre site, 35 St. and Noland Rd., incl. railroad spur by G. M. & O. Ry. $600,000.

N. C., Spruce Pine—PLANT—United Fieldspar & Minerals Corp., rebuild plant. $500,000.

▲ **O., Toledo**—REFINERY—Pure Oil Co., 35 E. Wacker St., Chicago, Ill., alkylation unit at Toledo refinery to make high octane gasoline components for aviation gasoline. $2,560,000.

▲ **Pa., Pittsburgh**—STEEL MILL—Jones & Laughlin Steel Corp., 3 and Ross Sts., steel mill expansion, 2nd Ave. and Monongahela River, Hazlewood Dist. $5,000,000. CD 3/17/49.

▲ **Pa., Sharon**—PLANT—Westinghouse Electric Corp., Union Bank Bldg., Pittsburgh, 1 story, 210x1000 ft., steel deck, brick transformer plant addn. $1,000,000. CD 7/12.

▲ **Tex., Daingerfield** — PLANT — Longhorn Ordnance Works, Daingerfield, plans by Thiokol Corp., 780 N. Clinton Ave., Trenton, N. J. and R. W. Booker & Assoc., 804 Pine St., St. Louis, Mo., archts.-engrs., plant for mfg. rocket fuel. $1,000,000.

Tex., Dallas—SERVICE—Norman Bramely, 4621 Watauga St., service bldg. $800,000.

▲ **Tex., Fort Worth**—PLANT—Sid Richardson Carbon Co., Fort Worth Club Bldg., carbon black, synthetic rubber units. $2,000,661.

▲ **W. Va., Spelter**—PLANT—Meadowbrook Corp. (subsidiary Mathiesen & Hogoler Zinc Co.,) Spelter, plant expansion. $1,500,000. Archineer Design Assoc., 217 Monroe Ave., Fairmont, engrs.

▲ **Alta., Edmonton**—REFINERY—Sherritt-Gordon Mines Ltd., 25 King St. W., Toronto, Ont., nickel refinery at Fort Saskatchewan, 11 mi. northeast of here. Approx. $12,000,000. CD 4/4.

▲ **B. C., Quesnel**—PULP MILL—Western Plywood Co. Ltd. 900 E. Kent St., Vancouver, pulp mill, $19,000,000. CD 7/24/50.

▲ **Que., Beauport East**—PLANT—Atlas Realties Ltd., Bureau of Industrial Comm., City Hall, Quebec City, 2,000,000 ft. cement plant, $3,500,000.

UNCLASSIFIED

Calif., Lynwood—SWIMMING POOL—City, 11331 Plaza St., $400,000 bond election Apr. 8, swimming pool. Ralph S. Brooks, Central Bldg., Monrovia, consult. engr. CD 10/22.

▲ **Okla., Tulsa**—PARK—City, City Hall, bond election Feb. 26, park imprs. $2,060,000. W. R. Wooten, city engr.

S. C., Clinton—GAS SYSTEM—City, natural gas sys. Approx. $750,000. J. W. Goodwin Eng. Co., 2111 7th Ave. S., Birmingham, Ala., consult. engr.

▲ **Tenn., Nashville** — FREIGHT YARDS — Louisville & Nashville R. R. Co., L. L. Adams, ch. engr., 908 West Broadway, Louisville 1, Ky., and Nashville, Chattanooga & St. Louis Ry., J. C. Aker, ch. engr., 930 Broadway, Nashville, Zone 3, freight yards, incl. receiving yards (13 tracks) classification yards (34 tracks) and departure yards (13 tracks), in Sixth Civil Dist. $14,000,000.

Tex., Corsicana—GAS LINE, etc.—Lone Star Gas Co., 1915 Wood St., Dallas, gas distr. line replacement, $225,000; gas pipe line connections to new fields, $300,000.

▲ **Tex., Dallas**—GAS LINE—Lone Star Gas Co., 1915 Wood St., 28 mi. 12- to 24-in. gas belt line around city to reinforce gas supply, $1,513,700; construct 2nd phase improvement for Southwest sect. of city, incl. pipe storage, and storage for heavy equip., automotive servicing, $150,000. CD 5/1/47.

Wash., Seattle—WHARF—Port of Seattle, Bell St. Terminal, exten. north wharf and constr. part of transit shed at East Waterway Terminal, $600,000. G. T. Treadwell, ch. engr. CD 3/13/47.

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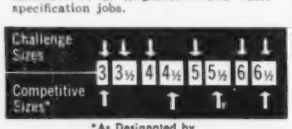

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CONSTRUCTION REPORTS-Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
February 19 Massachusetts
STREETS AND ROADS
February 12 Massachusetts

BIDS ASKED—BUILDINGS

▲ **Me., Lewiston**—HOSPITAL—Bids Asked—St. Mary's General Hospital, 318 Sabattus St.; hospital addn., Sabattus St. $1,900,000. Stanley S. Merrill, 9 Vine St., Auburn, archt. CD 1/2.

BUILDINGS

LOW BIDS AND CONTRACTS

Tibbitts Constr. Supply Co., Inc., 815 Bedford St., East Bridgewater, Mass. CA $820,000. Animal HOSPITAL, BRAINTREE, MASS. Wayne Veterinary Clinic, 993 Columbus Ave., Springfield, Mass. Earle B. Terry, 33 Dean St., Braintree, Mass., archt.

▲ **R. & S. Constr. Co.**, 10 Tremont St., Boston, Mass. Owner Builds. $2,500,000. 221 unit APARTMENT, Park St., BROOKLINE, MASS. M. Waters, 73 Tremont St., Boston, Mass., archt.

▲ **Louis H. McAloon Jr.**, Third St., N., Andover, Mass. LB $1,738,375. superstructure 208 HOUSING units, Proj. PHA 10-2, LAWRENCE, MASS. Lawrence Housing Auth., 90 Broadway, Lawrence, Mass. Bids Jan. 23. CD 1/2.

E & F Constr. Co., 94 Wells St., Bridgeport, Conn., CA, $844,000, HIGH SCHOOL, Queen St. near Route 6, NEWTOWN, CONN. Town Newtown, Conn. Bids Jan. 8, awarded Jan. 18. CD 1/16, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
February 14 New York
February 20 Delaware
STREETS AND ROADS
February 13 New York
February 19 Maryland
February 20 Delaware
February 21 Pennsylvania

▲† **Pa, Middletown**—TEST BLDG., etc.,—B.A. 2/21—Dpt. Army, Middletown, test bldg. and jet engine test cells. $2,059,267. Graham, Anderson, Probst & White, 80 E. Jackson Blvd., Chicago, Ill., engrs.-archts. CD 1/2, under LB.

BIDS ASKED—BUILDINGS

N. Y., Yonkers—SCHOOL—B.A. 2/11—Bd. Educ., 130 S. Broadway, school, P. S. 30. $475,000. CD 1/17, under LB.

▲ **N. J., Atlantic City**—HOUSING—B.A. 2/14—Atlantic City Housing Auth., 2311 Fairmount Ave., Walter J. Buzby Homes, $1,500,000. Extended date. Severud, Elstad & Krueger, 415 Lexington Ave., New York, N. Y., engrs. A. L. Brooks, 1616 Pacific Ave., Atlantic City, N. J., and Churchill & Fulmer, 19 W. 44 St., New York, N. Y., archts. CD 1/16.

▲ **N. Y., Binghamton**—APARTMENT—B.A. 2/14—Binghamton Municipal Housing Auth., City Hall, garden apartment, Project NY 16-1, 25 bldgs. for 150 families. $1,916,000.

▲ **Del., Wilmington**—HOUSING—B.A. 3/4—Wilmington Housing Auth., 2403 Thatcher St., 200 unit housing, Eastlake development, $1,250,000. George E. Pope & Albert Kruse, 1108 Washington St., archts. CD 9/12.

SOON LETS CONTRACT—BUILDINGS

▲ **Md., Hagerstown**—PLANT—Fairchild Engine & Airplane Corp. Aircraft Div., Hagerstown, soon lets contract plant, hangar expansion, etc. $6,952,000. Allmon Fordyce & William Hambly, 70 W. 40 St., New York, N. Y., archts. Peter A. Stobel, 70 W. 40 St., New York, N. Y., engr. CD 1/17.

▲ **Pa., Phila.**—SHOP, etc.—General Electric Co., 1405 Locust St., soon lets contract shop, warehouse, paving, road work, railroad work, grading, $1,000,000. The Kuljian Corp., 1200 N. Broad St., engrs.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, **Bero Eng. & Constr. Corp.**, McKinley Bldg., Buffalo, N. Y. LB $606,064, est. $615,000, 7.08 mi. Watkins-Lodi, Pts. 1, 2, and 3, S.H. 8110 and 8035, Cont. FA. RC 52-10, Cty Schuyler Co.;

I. & O. A. Slutsky, Hunter, N. Y., LB $137,070, est. $143,000, 0.83 mi. Tuxedo, Harriman, Pt 1, S.H. 8248, Cont. R.C. 52-2, Orange Co.;

Tully & DiNapoli and Gull Contg. Co., Inc., 33-15 Lawrence St., Flushing, N. Y. LB $2,577,235, est. $2,815,000, 0.36 mi. Major Deegan Expressway Exten., Contr. 3A, FA.MDE, 52-1, Bronx Co.; LB $1,777,332, est. $1,956,000, 1.67 mi. Major Deegan Expressway exten. Contr. 2A, Parkway Connection, FA. MDE. 52-2, Bronx Co.;

Arute Bros. Inc., 560 S. Main St., New Britain, Conn., LB $3,225,761, est. $4,169,000, 11.47 mi. New York State Thruway-Ontario St., Stafford-South Byron, S.H. 1865, LeRoy-Brockport, Pt 3, S.H. 1730, West Bergen Rd. C.R. 31; North Rd. C.R. 40, O.T. 52-2, R.C. 52-16, S.T. 52-2 Genesee Co. Bids Jan. 30. CD 1/9, 1/11 and 1/17.

▲ **Union Building & Constr. Corp.**, 631 Main Ave., Passaic, N. J., CA, $2,743,130, Runway A and Taxiway T-2 grading, drainage and paving, Newark Airport, Contr. NA-220.002, NEWARK, N. J. Port of New York Auth., 111 8 Ave., New York, 11, N. Y. Bids Dec. 11. CD 12/17, under LB.

▲† **E. J. Albrecht Co.**, 2626 W. 26 St., Chicago, Ill. CA $1,606,725. Wills Creek Channel Imprvt. Sect. 1, Cumberland, Md. and Ridgeley W. Va., Eng. 49-080-52-16, MARYLAND and WEST VIRGINIA. U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C. Bids Dec. 18, awarded Jan. 17. CD 12/12, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Bethpage Estates Homes**, c/o Alwin Cassens, Jr., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. Approx. $2,000,000. 200 HOUSES on tract on Hempstead Turnpike, east of Stewart Ave., BETHPAGE, N. Y.

▲ **Hewlett Terrace Homes**, c/o A. H. Salkowitz, archt., 37-60 82 St., Jackson Heights, N. Y. Owner Builds. Approx. $1,000,000. 40 HOUSES on tract at Main St. and Emmett Ave., EAST ROCKAWAY, N. Y.

▲ **Moss & Sons**, c/o Julius Fishkind, archt., 161-19 Jamaica Ave., Jamaica, N. Y. Owner Builds. $4,000,000. 200 HOUSES on 80 acre tract bounded by Old Country Rd., Old Motor Parkway, Mulberry Rd. and Wetherole St., GARDEN CITY, N. Y.

▲ **Bethlehem Eng. Corp.**, 1560 Broadway, New York 19, N. Y. Owner Builds, Designs and Construct, $2,000,000. 4 story AIRLINE TERMINAL bldg., 10 Ave. and 42 St., NEW YORK, N. Y. West Side Airlines Terminal Corp., 610 5th Ave., New York, N. Y., lessee.

▲ **Kay Manor Homes**, c/o Alwin Cassens, Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. Approx. $2,500,000. 220 HOUSES on tract on Bellmore Rd., NORTH BELLMORE, N. Y.

▲ **Plainview Ranch Homes**, c/o Alwin Cassens, Jr., archt., 145 S Franklin Ave., Valley Stream, N. Y. Owner Builds. Approx. $1,500,000. 176 HOUSES on 38 acre tract on Old Country Rd., east of South Oyster Bay Rd., PLAINVIEW, N. Y.

▲ **Brookhaven Corp.**, 180 Long Lane, Upper Darby, Pa., Separate Contracts. $1,000,000. RESIDENTIAL DEVELOPMENT, Farrington Rd., etc., PHILA., PA. Walter F. Thaete, 4934 Woodland Ave., Drexel, Pa., archt.

▲ **Old Line Co.**, 1606 Latimer St., Phila., Pa., CA. Approx. $3,000,000. RESIDENTIAL DEVELOPMENT, Scotia Rd., PHILA., PA. Andorra Homes, c/o Houston Estate, 15 and Sansom Sts., Phila., Pa. Walter K. Durham, 1606 Latimer St., Phila., Pa., archt.

▲ **Sturm & Co.**, 4533 N. Front St., Phila., Pa., CA. $3,500,000. RESIDENTIAL DEVELOPMENT, WHITEMARSH TWP. (Barren Hill P.O.) PA. Owner, c/o general contractor.

Benjamin Friedman, Church Lane and Chester Ave., Yeadon. Separate Contracts. $300,000. RESIDENTIAL DEVELOPMENT, Manor Rd., YEADON, PA.

▲ **Dover Builders, Inc.**, 3208 W. 2 St., Wilmington, Del., Separate Contracts. $1,200,000, RESIDENTIAL DEVELOPMENT, S. State St., DOVER, DEL.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
February 20 Tennessee
STREETS AND ROADS
February 13, 21 Louisiana

Ga., Griffin—B.A. 2/15—City, WW imprvs. Approx. $500,000. Plans deposit $35. Wiedeman & Singleton, P. O.Box 1878, Atlanta, engrs. CD 9/25/50.

BIDS ASKED—BUILDINGS

▲ **N. C., Winston-Salem**—HOUSING—B.A. 2/19—Winston-Salem Housing Auth., Reynolds Bldg., 263 unit housing, Proj. NC 12-5. $2,000,000. Northup & O'Brien, Reynolds Bldg., archts. CD 10/3.

▲ **Miss., Meridian**—FACTORY—B.A. 2/21—City, factory for Textron, Inc. $5,500,000. CD 12/27.

Va., Hopewell—HOUSING—B.A. 2/21—Hopewell Redevelopment & Housing Auth., Hopewell, VA5-2 and VA5-3, 100 unit housing. $750,000. Plans deposit $50. CD 11/18/49.

▲ **Ala., Anniston**—HOUSING—B.A. 2/27—Anniston Housing Auth., Anniston, 272 housing units, Approx. $2,200,000. Bid date changed. CD 1/10/52.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **James E. Green**, Johnson City, Tenn., CA, $1,283,000. HOUSING units, BRISTOL, VA. Bristol Redevelopment & Housing Auth., Bristol, Va. Bids Jan. 15. CD 1/23, under LB.

▲ **Rayonier, Inc.**, Clyde Morgan, pres., 122 E. 42 St., New York, N. Y., Owner Builds, $25,000,000 PULP MILL, DOCTORTOWN, GA. Awarded Jan. 25.

Jack Culpepper, 114 E. 5 Ave., Tallahassee, Fla. CA $849,000, HOUSING Projects GA 60-3 and GA 60-4, MOULTRIE, GA. Moultrie Housing Auth., Moultrie, Ga. Bids Jan. 16. CD 1/22, under LB.

▲ **Flint Bros. Constr. Co.**, P.O. Box 1289, Jackson, Miss. CA $1,194,400. HOSPITAL, JACKSON, MISS. St. Dominic's Hospital, c/o James T. Canizaro, archt. Deposit Guaranty Bank Bldg., Jackson, Miss. Bids Jan. 17. CD 1125, under LB.

▲ **Turner Constr. Co.**, 420 Lexington Ave., New York, N. Y., and **Struck Constr. Co.**, 147 N. Clay St., Louisville, Ky. CA $5,000,000. Second unit, PLANT, Building R for mfg. kitchen ranges, Buechel, LOUISVILLE, KY. General Electric Co., River Rd., Schenectady, N. Y. Albert Kahn Associated Architects & Engineers, Inc., 345 New Center Bldg., Detroit, Mich., engr. and archt.

Stevens Constr. Co., Cairo, Ill. LB $975,000. 100 DWELLING units, PADUCAH, KY. Paducah Municipal Housing Comm., Paducah, Ky. Bids Jun. 28. CD 1/2.

Perkins & Gray, Ashland, Ky. LB Type A $849,067. Type B $843,000. 134 HOUSING units, Proj. Ky. 16-1, RICHMOND, KY. Richmond Municipal Housing Comn., Richmond, Ky. Bids Jan. 25. CD 1/9.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
February 15 Illinois
February 19 Wisconsin
STREETS AND ROADS
February 15 Illinois
February 19 Wisconsin

Wis., La Crosse—B.A. 2/14—City, 3 sewage pump stations 1,060 ft. 12 in. c.i. force main, pumping and generating equip. Plans deposit $5. J. Donohue Eng. Co., 608 N. 8 St., Sheboygan, engrs. CD 11/9.

BIDS ASKED—BUILDINGS

Wis., Manitowoc—HOSPITAL—B.A. 2/21—Manitowoc County Memorial Hospital, 817-8 St., 2 story, 180x200 ft. rein.-con., brick hospital, $500,000. F. W. Raeuber, 1024 S 9 St., archt. CD 3/14/50.

▲ **O., Toledo**—HEALTH CENTER—B.A. 2/26—City, Arnold V. Finch, mgr., Safety Bldg., 3 story partial bsmnt., city health center, Orange and Erie Sts. $1,099,000. Peterson, Hoffman & Grow, 1051 Spitzer Bldg., archts. CD 7/27/50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **V. N. Holderman & Sons, Inc.**, 890 Oakland Park Ave., Columbus, O., CA. $1,348,311, exten. east-west runway at Port Columbus, municipal airport, 3,500 ft. x 150 ft., 3,000 ft. runway will be asphalt and 500 ft. will be concrete for jet planes take-off, COLUMBUS, O. City, City Hall, Columbus, O. Bids Dec. 11. CD 12/18, under LB.

ILLINOIS—State Div. Hys., Springfield, rejected bids Jan. 11, grav. or crushed stone surf. course 4.87 mi. Fed. Aid Secondary Route 738, Greene Co., LB, $168,414; c. conc. 2.12 mi., Alt. Route US 67 in Madison Co., LB, $580,094. CD 1/15, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **McKinstrie Constr. Co.**, 4612 Woodward Ave., Detroit, Mich., CA. Approx. $1,000,000. rebuild tar products PLANT, install new equip., incl. tar heater, YOUNGSTOWN, O., Barrett Division, Allied Chemical & Dye Corp., 2100 Poland Ave., Youngstown, O.

▲ **Co-operative Home Builders, Inc.**, 228 N. La Salle St., Chicago, 1, Ill., Own Forces, Separate Contracts, $1,200,000, 27 APARTMENT bldgs., incl. 108 units, SKOKIE, ILL. Awarded Jan. 24. CD 1/4.

▲ **Wake-Pratt Constr. Co.**, John H. Wake, 1805 W. Grand Blvd., Detroit, Mich. Owner Builds. $1,000,000. 65 single HOMES, DETROIT, MICH.

Sunningdale Homes, Henry S. Alper, 19783 Freeland St., Detroit, Mich. Owner Builds. $850,000. 90 single, brick HOUSES, Sunningdale Development, DETROIT, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
February 20 Texas
STREETS AND ROADS
February 15 Minnesota
February 19, 20 Texas

† **Tex., Wichita Falls**—RUNWAYS, etc.—B.A. 2/19—U. S. Eng., Box 61, Tulsa 2, Okla., runways and taxiways, Inv. No. Eng 34-066-52-31. Approx. $500,000. Extended date. CD 1/22.

▲ **Tex., Houston**—B.A. 2/27—City, City Hall, 900 Brazos St., water treatment plant for San Jacinto River Reservoir, $3,250,000; intake and raw water pumping station on Ship Cannel opposite Champion Paper Co., $325,000. Freese, Nichols & Turner, 2111 C & I Bldg., engrs. CD 12/21.

BIDS ASKED—BUILDINGS

▲ **Minn., Lauderdale** (St. Paul P.O.)—SCHOOL—B.A. 2/14—Bd. Educ., Independent School Dist. 3, Ramsey Co., T. C. Schultz, clk., Junior-Senior High School, $1,895,140, Extended date. Magney, Tusler & Setter, Foshay Tower, Minneapolis, archts. CD 1/3.

▲ **Tex., Houston**—LABORATORY—B.A. 2/19—Humble Oil & Refining Co., Humble Bldg., 2 story research laboratory (incl. 112,000 sq. ft. main bldg., 30,000

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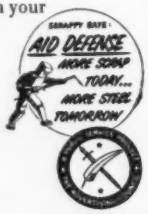

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sq. ft. warehouse). $2,500,000. Plans deposit $50. MacKie & Kamrath, 2713 Ferndale St., archts. Howard & Johnson, Scanlan Bldg., and Walter P. Moore, 4605 Montrose St., engrs. CD 4/10/51.

N. M., Albuquerque—SERVICE CENTER, etc.—B.A 2/21—Public Service Co. of New Mexico, 424 W. Central St., service center, L-shaped administration bldg. and warehouse. $500,000. Plans deposit $45. L. B. Hesselden, 323 S. 3 St., archt.

N. D., Grand Forks—MEDICAL SCIENCE—B.A. 2/21—State Bd. Higher Educ., Bismarck, medical science bldg. addn. at University of North Dakota. $600,000. Wells & Denbrook, 425 Kittson Ave., archts. CD 12/5.

▲ **Tex., Dallas**—HOUSING—B.A. 2/25—Dallas Housing Auth., 2525 Lucas Dr., 500 low-rental housing units, Tex. 9-11A, in West Dallas for Negroes. $3,750,000. Associated West Dallas Housing Archts., 2525 Lucas Dr., archts. CD 12/2/49.

▲ **Minn., Fergus Falls**—SCHOOL—B.A. 2/27—Bd. Educ., Independent School Dist. 21, A. A. Vollbrecht, clk., high school, $1,250,000. Plans deposit $25, Thorshove & Cerny, 400 Metropolitan Life Bldg., Minneapolis, archts. CD 12/13/50.

▲ **Tex., Borger**—DWELLINGS—B.A. 2/27—Borger Housing Auth., c/o Joe E. Collins, exec. dir., Borger, Tex. 36-1, 150 brick, tile dwelling units in 49 bldgs., 1 admin. bldg. with site development. $1,500,000. Plans deposit $50. Boese & Harkrider, 308 Texas & Pacific Bldg., Fort Worth, archts. CD 1/22.

▲ **Ark., Shumaker**—B.A. 3/5—At office Dist. P. Wks. Officer, Eighth Naval District, U. S. Naval Station, Building 16, New Orleans, 12, La., construction high explosive and fuse and detonator magazines, Naval Ammunition Depot, Spec. 32940. Plans deposit $250. CD 12/12.

▲ **Mo., St. Louis**—HOUSING—B.A. 3/6—St. Louis Housing Auth., Gerard B. Cleary, exec. dir., 901 Washington Ave., Zone 1, constr. 1,736 dwelling units, incl. twenty 11 story, brick, rein.-con. apartment bldgs., demolition certain buildings, etc., Proj. Mo-1-4. Bids 12/20 rejected. Hellmuth, Yamasaki & Leinweber, Inc., 1313 International Office Bldg., 722 Chestnut St., Zone 1, archts. CD 1/9.

▲ **Tex., Paris**—HOUSING—B.A. 3/11—Paris Housing Auth., c/o Maury Robinson, chn., Paris, Tex. 48-1 and 48-2, 200 brick, tile dwelling units in 55 bldgs., one admin. bldg., and 1 main bldg. with site development. $2,000,000. Plans deposit $50. Extended date. Boese & Harkrider, 308 Texas & Pacific Bldg., Fort Worth, archts. CD 1/22.

▲ **Tex., Amarillo**—REFINERY—Bids Asked—The Texas Co., Texas Bldg., Houston, aviation gasoline refinery, $19,750,000; oil and products storage, $300,000. CD 11/15.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Barfield Constr. Co.,** Amarillo, Tex. CA **$1,469,699,** est. $2,490,856. aircraft hydrant type fueling sys., Smoky Hill Air Force Base, Eng. 23-028-52-16, SALINA, KAN. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids Dec. 7, awarded Jan. 2. CD 12/13, under LB.

▲† **Barfield Constr. Co.,** Amarillo, Tex. CA **$1,436,798.** Group B buildings, Smoky Hill Air Force Base, Inv. 52-11, SALINA, KAN. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids Nov. 30. CD 12/4, under LB.

▲† **Peter Kiewitt Sons Co.,** Airport Branch P. O., Wichita, Kan. LB **$1,155,930,** rehabilitation airfield pavement, Smoky Hill Air Force Base, Inv. 52-29, SALINA, KAN. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids Jan. 15. CD 1/2.

▲ **Continental Pipe Line Co.,** 502 Navigation Blvd., Corpus Christi, Tex., cancelled bids, 37 mi. 8 in. (2nd and last sec. crude oil line from Port Isabel to McAllen) crude oil pipe line, **$775,000;** 5 pumping stations, every 30 mi. between Rio Grand City and Port Isabel, **$375,000;** 23 mi. 8 in. crude oil pipe line from near Rio Grande City to McAllen, Rio Grande City, **$350,000,** TEXAS. Will re-advertise. CD 9/6.

TEXAS—State Hy. Comn., State Hy. Bldg., Austin, **Harrison Engr. & Constr. Corp.,** 4638 J. C. Nichols Parkway, Kansas City, Mo., CA. **$976,600.** c. conc. 6.107 mi. Hy. S.H. 73, Proj. FI 1052 (18), Harris Co. Bids Jan. 15, awarded Jan. 24. CD 1/18, under LB.

▲ **TEXAS**—State Hy. Comn., State Hy. Bldg., Austin., **Gulf Bitulithic Co.,** P. O. Box 2572, Houston 1, Tex., CA. **$1,109,604,** grading, storm sewers, flexible base, asph. surf., c. conc. pavement, bridges 1,905 mi. Hy. U. S. 59, Proj. U 514 (13), Harris Co. Bids Jan. 16, awarded Jan. 24. CD 1/19, under LB.

† **Grade Constr. Co.,** 403 Century Bldg., Fort Worth, Tex., CA. **$887,573,** classification and MHE shop, box and crate shop; concrete apron, Inv. No. ENG 41-443-52-6, at Fort Worth Quartermaster Depot, FORT WORTH, TEX. U. S. Eng., 1327 Texas & Pacific Bldg., Fort Worth, Tex., Bids Jan. 4, awarded Jan. 22. CD 12/17.

▲† **Industrial Constructors,** 3860 Galapago, Denver, Colo., LB, **$1,923,500,** est. $2,674,000, constr. four 2 story, 67x341 ft., technical training bldgs., DENVER, COLO. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Jan. 22.

▲ **NEW MEXICO**—State Hy. Comn., Capitol Bldg., Santa Fe.

Skousen-Hise Contg. Co., Springer Bldg., Albuquerque, N. M., CA. **$551,558,** grading, widening one concrete and steel bridge, hot plant asphaltic surf. course sealing with asph. and stone chips and misc. constr. 8.557 mi. U. S. Hy. Rte. 285 between Artesia and Carlsbad, FAP F-132 (6), Eddy Co.;

Allison & Haney, 1412 N. Broadway, Albuquerque, N. M., CA. **$118,890,** grading, surf. course, misc. constr.

4.622 mi. N. M. Hy. Rte. 368 between Tinnie and Spindle, FAP No. S-23 (1), Lincoln Co.;

Lowdermilk Bros., Los Alamos, N. M., CA. **$261,042**, grading, stabil. surf. course, misc. constr. 11.127 mi. N. M. Hy. Rte. No. 24 between Weed and Pinon, FAP No. S-164 (2), Otero Co.;

Skousen Constr. Co., Albuquerque, N. M., CA. **$196,767**, grading, stabil. surf. course, misc. constr 12.67 mi. N. M. Hy. Rte. No. 21 between Ojo Feliz and LaGueva, FAP No. S-216 (1), Mora Co. Grand total $1,128,257. Bids Jan. 25. CD 1/16.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Bennett Constr. Co.**, 3252 Roanoke Rd., Kansas City 8, Mo. superstructure POWER PLANT;

Kansas City Structural Steel Co., 21 and Metropolitan Sts., Kansas City, Kan., structural steel and erection;

L. G. Barcus & Sons Constr. Co., 1480 State St., Kansas City, Kan., intake structure for power plant on 50 acre tract, Routes E and EE, MISSOURI CITY, MO. Total est. cost **$8,000,000**. Northwest Electric Power Co-operative, Inc., c/o F. A. Martz, gen. supt., Cameron, Mo. Bids Jan. 23. CD 12/11.

▲ **Sheffield Steel of Texas**, Industrial Rd., Houston, Tex. Own Forces. **$3,250,000**, BLOOMING MILL unit; **$1,750,000**, misc. constr. in steel mill units area, incl. repairing, remodeling, addns., near HOUSTON, TEX. CD 2/13/51

▲ **Eastern States Petroleum Co., Inc.**, c/o Ship Channel, Houston, Tex., cancelled bids to have been opened in July, various Gasoline Grades, Production PLANT, near HOUSTON, TEX. Est. **$3,300,000**. CD 7/24.

▲ **M. W. Kellogg Co.**, M. Esperson Bldg., Houston, Tex., CA Approx. **$3,750,000**, Orthoflow, Fluid CATALYTIC CRACKING unit (26,000 bbl. daily capacity) 20,000 bbl. vacuum feed preparation unit, at Smith Bluff, HOUSTON, TEX. Pure Oil Co., Wilson Bldg., Corpus Christ, Tex. CD 10/25.

▲ **M. W. Kellogg Co.**, M. Esperson Bldg., Houston, Tex., CA. **$1,750,000**. 20,000 bbl daily capacity vacuum-flash REFINERY unit, at Smiths Bluff, HOUSTON, TEX. Pure Oil Co., 1st Natl. Bank Bldg., Houston, Tex. CD 1/8.

▲ **Phillips Petroleum Co.**, Bartlesville, Okla. Own Forces. **$5,500,000**. natural gasoline PLANT; Approx. **$150,000** field crude oil gathering sys.; Approx. **$100,000**, crude oil pumping station, near MIDLAND, TEX. Grand total $5,750,000. CD 5/23/51.

▲ **Gulf Oil Corp.**, Port Arthur, Tex., cancelled bids acid sludge decomposition PLANT, est. **$1,043,855**; sulphuric acid plant, **$1,275,000**, PORT ARTHUR, TEX. CD 1/4.

▲ **Dodd Corp.**, Republic Bank Bldg., Dallas, Tex., CA. Approx. **$3,500,000**. construct, manage, finance, 340-addnl. military HOUSING units at Fort Sam Houston, SAN ANTONIO, TEX. U. S. Govt., c/o Deputy Post Commander Col. Eustis L. Poland, Fort Sam Houston, Tex. CD 1/23.

▲ **Southwest Ball Constr. Co.**, 228 E. Martin St., San Antonio, Tex., LB **$1,107,777**, Tex. 6-13, 154 DWELLING units, SAN ANTONIO, TEX. San Antonio Housing Auth., 400 Labor St., San Antonio, Tex. Bids Jan. 29. CD 1/15.

▲† **Robert E. McKee**, P. O. Box 1706, Santa Fe, N. M., CA. **$2,878,300**. approx. 75,000 sq. ft. rein.-con., structural steel and metal siding PHYSICS BLDG. TA-3, Phase II, incl. grading, paving, utility systems, Inv. 291-52-29, LOS ALAMOS, N. M. U. S. Atomic Energy Comn., Los Alamos, N. M. Bids Jan. 15. CD 1/22, under LB.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

February 20 California

STREETS AND ROADS

February 21 California

BIDS ASKED BUILDINGS

▲ **Ariz., Scottsdale**—HOTEL, etc.—Bids Asked—Natham Shayne, Mackinac, Mich., 5 story, 123x150 ft., hotel, shops and swimming pool, $1,500,000. William Green & Nicholas G. Sakella, Tucson, archts. CD 9/1/49.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **S. A. Healy Co.**, 61 Westchester St., White Plains, N. Y., LB **$4,888,600**, est. $6,922,020. cofferdam and powerhouse excavation, The Dalles Dam, CIVENG 35-026-52-123, OREGON-WASHINGTON. U. S. Eng., 628 Pittock Block, Portland 5, Ore. Bids Jan. 22. CD 12/4.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,

Peter Kiewit Son's Co., 442 Post St., San Francisco, Calif., LB, **$2,515,564**, c. conc., plant mix surf. and constr. 6 grade separation structures 5 mi. between Railroad Ave. in Pittsburg and "A" St., Antioch, Contra Costa Co. Bids Jan. 23. CD 1/41.

Griffith Co., 1060 S. Broadway, Los Angeles, Calif., LB, **$331,000**, roadway and parking area pavement and drainage structures at Berths 195-199, Spec. 1202, Wilmington, LOS ANGELES, CALIF. City of Los Angeles, Harbor Dpt., City Hall, Los Angeles, Calif. Bids Jan. 23. CD 5/27/49

BUILDINGS

LOW BIDS AND CONTRACTS

Brazier Constr. Co., 309 Pontius Ave., Seattle, Wash., CA, **$896,723**, HIGH SCHOOL, SEATTLE, WASH. South Central School Dist. 406, 13812 51 Ave. S., Seattle, Wash. Bids Jan. 10. CD 1/16, under LB.

▲† **Zoss Constr. Co.**, 401 W. Avenue 19, Los Angeles, Calif., CA, **$1,364,504**, est. $1,619,204, 200x1200 ft. general supply WAREHOUSE at Mt. Rainier ordnance depot, ENG 45-108-52-57, TACOMA, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids Dec. 20 CD 12/27, under LB.

▲† **Del Webb Constr. Co.**, P.O. Box 4066, Phoenix, Ariz., LB, **$12,614,832**, (1) masonry;

Robert E. McKee, 4700 San Fernando Rd., W., Los Angeles, Calif., LB, **$13,281,804** (2) concrete permanent TROOP SPACES and supporting facilities at FORD ORD, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids Jan. 22. CD 1/7, under Heavy Construction.

▲† **Theo. G. Meyer & Son, Macco Corp., Charles L. Harney, Inc. & Barrett & Hilp**, 918 Harrison St., San Francisco, Calif., CA, **$8,435,836**, two 200x804 ft. WAREHOUSES, six 200x971 ft. WAREHOUSES railroad, pavement, storm drain and sanitary sewer, utilities and misc. work and box and crate SHOP at Sharpe General Depot, LATHROP, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids Dec. 20, awarded Jan 23. CD 12/31, under LB.

ALASKA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Puget Sound Bridge & Dredging Co. and Johnson, Drake & Piper, Inc.**, 2929 16 Ave. S. W., Seattle, Wash., CA, **$5,248,000**, est. $6,022,000. transmitter facilities, maintenance roads and antennae, taxiway extens., and road relocation at Naval Base, KODIAK, ALASKA. Pub. Wks. Office, 17th Naval Dist., Box 38, Navy, 127, c/o FM, Seattle, Wash. Bids Jan. 15, CD 1/19, under LB.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Ont., Toronto**—BUILDINGS—B.A. 2/19—Defence Constr. Ltd., 441 Queen's Quay W., 12 standard buildings for air force base at Downsview, Toronto suburb, $1,000,000. Plans deposit $100. R. P. Opie, c/o owner, regional engr.

▲ **NOVA SCOTIA**—B.A. 4/22—Halifax-Dartmouth Bridge Comn., H. J. Egan, secy., Halifax, N. S., **Halifax**—fabrication and erection of steel for superstructure of Halifax-Dartmouth Bridge. $7,000,000. Plans deposit $100. P. L. Pratley, 909 Drummond Bldg., Montreal, Que., engr. C. A. Fowler & Co., 422 Capitol Bldg., Halifax, N. S., archts. CD 11/14.

BIDS ASKED—BUILDINGS

B. C., Vancouver—HOUSING—B.A. 2/12—J. L. Adams, engr., Central Mortgage & Housing Corp., 360 Homer St., 62 houses, Project 6-Z-4, Fraser View, $465,000. Plans deposit $100. CD 8/18/49.

▲ **N. S., Halifax** — HOUSING — B.A. 2/19 — Central Mortgage & Housing Corp., 1032 Gottingen St., housing for military married personnel 222 units, first 35 units in five 2 and 3 story concrete buildings, also roads, water and sewer services, central heat plant, $3,000,000. Plans deposit $100. P. J. Mangan, c/o owner, regional engr. CD 1/16/48.

BUILDINGS

LOW BIDS AND CONTRACTS

Commonwealth Constr. Co. Ltd., 670 Taylor St., Vancouver, B. C., CA, **$738,375**, INLAND MAGAZINE ESTABLISHMENT addn., VANCOUVER, B. C. Defence Constr. Ltd., 360 Homer St., Vancouver, B. C. J. L. Adams, c/o owner, engr.

▲ **Lafleur & Laframbois**, 2799 Cote Ste. Catherine Rd., Montreal, Que., Owner Builds, **$1,000,000**, 100 one and half story, concrete, brick, COTTAGES, near C.P.R. tracks, DORVAL, QUE.

A. Boisgoey, 7589 DeNormanville St., Montreal, Que., Owner Builds, **$900,000**, concrete, brick APARTMENT, MONTREAL, QUE.

▲ **Duhamel & Fils**, 7552 De Laroche St., Montreal, Que., Owner Builds, Approx. **$1,000,000**, 30 apartment blocks incl. 8 or 12 units each, Fabre St., MONTREAL, QUE. C. Grenier, 170 Geneva Crescent, Mount Royal, Que., archt.

W. Letourneau, 3194 Beubien St. E., Montreal, Que., Own Forces, Approx. **$900,000**. Apartment HOUSES, 19 Ave. Rosemount near Papineau Ave., MONTREAL, QUE. R. Chalifour, 6275 Papineau Ave., Montreal, Que., archt.

LATIN AMERICA

BUILDINGS

LOW BIDS AND CONTRACTS

Arthur G. McKee Co., 2300 Chester St., Cleveland, O., U. S. A. CA. REFINERY, CUBATA, BRAZIL. Conselho Nacional de Petroleo, P.W.D., Rio de Janeiro, Brazil. Hydrocarbon Research, Inc., 115 Broadway, New York 6, N. Y., U. S. A. engr. Work underway. CD 9/28/50.

OFFICIAL PROPOSALS

Bids: March 3, 1952

Aswan Dam Hydro Electric Scheme

ASWAN DAM HYDRO ELECTRIC SCHEME
EGYPTIAN GOVERNMENT
MINISTRY OF PUBLIC WORKS
HYDRO-ELECTRIC POWER COMMISSION
ADJUDICATION FOR AIR CONDITIONING AND VENTILATION INSTALLATION

The Egyptian Government hereby announces that Tenders are invited for the supply, erection and maintenance of an Air Conditioning and Ventilation Installation required for the Hydro-Electric Power Station at the Aswan Dam, all according to the Specification.

The Tender Documents comprising Conditions of Contract, Specification and Tender Drawings for the entire works may be obtained as from 3rd March 1952, either at the Hydro-Electric Power Department, Ministry of Public Works, Cairo, or the office of the Consulting Engineers of the Egyptian Government, Kennedy and Donkin, 12, Caxton Street, London. S. W. 1, or from Royal Egyptian Embassies and Legations in Washington, Paris, Stockholm, Berne, Brussels, Rome and Frankfurt.

Tenderers must pay LE.10 (equivalent to $28.80 in American dollars) which covers the cost of the complete set of Tender Documents and Drawings. This sum must be paid to the National Bank of Egypt either in Cairo or in London to the credit of Hydro-Electric Power Department, Ministry of Public Works, or at one of the above mentioned Embassies or Legations, and will not be refunded.

Upon presentation of the Bank receipt to either the Hydro-Electric Power Department in Cairo or the Consulting Engineers in London, or on the payment of the required sum at one of the above mentioned Embassies or Legations, as the case may be, tenderers will be supplied with the complete set of Tender Documents above referrred to.

When submitting their tenders, tenderers must pay a provisional deposit of two per cent of the value of the Contract with a maximum of LE.600 (six hundred Egyptian Pounds) to the National Bank of Egypt in Cairo, or in London to the credit of Hydro-Electric Power Department, Ministry of Public Works. Letters of Guarantee from approved Banks will be accepted in lieu of cash. A list of approved banks is given in the Specification.

The Contractor to be entrusted with these works will, after consideration of tenders by the Hydro-Electric Power Commission and the Consulting Engineers, be nominated by the Egyptian Government and the work shall be executed as a sub-contract to the order of the main contractor for the Civil Engineering Works.

Bids: February 18, 1952

Feeders to Identification Signs

THE PORT OF NEW YORK AUTHORITY
NEWARK AIRPORT
CONTRACT NA-140.006

Sealed proposals for the furnishing and installation of electric feeder cables to the Identification Signs at Port Newark and Newark Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:30 A.M. Monday, Feb. 18, 1952, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, February 7, 1952

(Continued on following page)

OFFICIAL PROPOSALS

Bids: February 28, 1952

Constructing Beardsley Terrace

PROJECT CONN. MR-40
BRIDGEPORT, CONN.

THE HOUSING AUTHORITY OF THE CITY OF BRIDGEPORT, CONNECTICUT, will receive sealed bids in triplicate for the construction and finishing complete of "Beardsley Terrace", a State Moderate Rental Housing Development, Project Conn. Mr-40, "Trumbull Avenue Site", consisting of thirteen (13) apartment type dwelling structures and a Boiler House and Administrative Building containing a total of 832 dwelling units and located in Bridgeport, Connecticut. Such bids will be received at the office of the HOUSING AUTHORITY OF THE CITY OF BRIDGEPORT, CONNECTICUT, 252 Hallett Street, Bridgeport, Connecticut, until 2:00 p.m., Eastern Standard Time, on the 28th day of February, 1952, at which time and place all bids will be publicly opened and read aloud.

The contract will include general construction work, lawns and planting, site improvements, plumbing, heating and electrical work and all other work necessary or incidental to completion of the project.

The successful bidder will be required to furnish any pay for satisfactory Performance and Payment Bond or Bonds, as well as a certified statement of financial condition as of a date not exceeding thirty days prior to the date thereof.

Proposed forms of Contract Documents, including Plans and Specifications, are on file at the Office of the HOUSING AUTHORITY OF THE CITY OF BRIDGEPORT, CONNECTICUT, at 252 Hallett Street, Bridgeport, Connecticut, and at the Office of Harry G. Lindsay & Fred. C. Johnson, Architects, at 211 State Street, Bridgeport, Connecticut.

Copies of the documents may be obtained by depositing $100.000 with the HOUSING AUTHORITY OF THE CITY OF BRIDGEPORT, CONNECTICUT for each set of documents so obtained. The amount of the deposit will be refunded to each person who returns the plans, specifications, and all documents in good condition within ten days after bid opening.

Plans and specifications will be available at the office of Harry G. Lindsay & Fred. C. Johnson, Architects, on and after January 30, 1952.

A satisfactory bid bond payable to the HOUSING AUTHORITY OF THE CITY OF BRIDGEPORT, CONNECTICUT, executed by the bidder and acceptable sureties in an amount equal to Five (5%) per cent of the bid shall be submitted with each bid.

THE HOUSING AUTHORITY OF THE CITY OF BRIDGEPORT, CONNECTICUT reserves the right to reject any or all bids and to waive any informalities in bidding.

No bid shall be withdrawn for a period of thirty (30) days subsequent to the opening of bids without the consent of the HOUSING AUTHORITY OF THE CITY OF BRIDGEPORT, CONNECTICUT

HOUSING AUTHORITY OF THE
CITY OF BRIDGEPORT, CONN.
HAROLD C. POOLE,
EXECUTIVE DIRECTOR

Bridgeport, Connecticut
Dated January 25, 1952

Bids: March 3, 1952

Construction Work, Kentucky

Sealed bids will be received by the Buechel Water District of Buechel, Kentucky, for the following construction work up to 2:00 P. M., Central Standard Time, March 3, 1952, at the Office of the Buechel Water District, Bradford Ave., Buechel, Ky. at which time and place they will be opened and read aloud.

CONTRACT A.

Furnishing and installing approximately 48,000 feet of 6 inch and 8 inch cast iron water pipe with valves and fittings; 300 ¾ inch copper water services with ¾ inch water meters and vaults and 60 six inch fire hydrant assemblies.

CONTRACT B.

Furnishing and constructing a reinforced concrete water reservoir.

CONTRACT C.

Furnishing and installing the pumps, station piping, controls, and electric service.

CONTRACT D.

Furnishing and erecting a steel elevated tank and foundations.

CONTRACT E.

Furnishing and constructing an office, garage and pump room structure on the roof slab of the reservoir.

Plans and specifications for the above work are available for examination at the following places:

1. Office of W. H. Lovejoy,
   3018 Frankfort Ave., Louisville, Ky.
2. Builders Exchange,
   120 E. Brandeis St., Louisville, Ky.
3. F. W. Dodge Corp.,
   300 W. Main St., Louisville, Ky.
4. Office of the Buechel Water District,
   Bradford Ave., Buechel, Ky.

Plans and specifications may be obtained from W. H. Lovejoy, 3018 Frankfort Ave., Louisville or from the Buechel Water District, Buechel, Ky. by depositing $15.00 per set. These deposits will be returned in full upon the return of each complete set within ten (10) days after bids are opened.

Bids must be accompanied by a certified check or bidders bond in a surety company authorized to do business in the State of Kentucky, in an amount not less than five per cent (5%) of his total bid, which shall be forfeited in case the bidder fails to enter into a contract with good and sufficient bond within ten (10) days after the contract has been awarded to him.

The right is reserved to reject any or all bids or to accept any considered advantage to the District.

BUECHEL WATER DISTRICT
By Bill Rice
Chairman, Board of Commissioners

Bids: April 22, 1952

Super Structure, Halifax-Dartmouth Bridge

CONTRACT NO. 3

Sealed tenders addressed to the undersigned and marked as instructed will be received at the office of the undersigned until 12 o'clock noon, Atlantic Standard Time, April 22nd, 1952, for the construction of the super structure of the Halifax-Dartmouth Bridge in the Province of Nova Scotia, in accordance with the plans and specifications available at the office of Dr. P. L. Pratley, 909 Drummond Building, Montreal, Quebec, and available for inspection at the office of C. A. Fowler and Company, 422 Capitol Building, Halifax, Nova Scotia, on or after January 22nd, 1952. These plans may be borrowed from the Engineer by recognized General Contractors on deposit of certified cheque for $100.00 guaranteeing the return of the plans. This deposit will be returned to all bidders on return of the plans to the office from which they were borrowed, and will be forfeited if the plans are lost, destroyed or damaged.

A certified cheque for ten percent of the amount of the tender made payable to the order of the Halifax-Dartmouth Bridge Commission, or alternatives as described in the instructions to bidders must accompany each bid, and tenders must be on the forms provided. The above deposit will be returned in the case of non-acceptance and be forfeited in case the successful tenderer does not proceed to the satisfactory completion of the contract.

A signed copy of the "Instructions to Bidders" must accompany each bid.

Tenders will only be considered from established General Contractors.

Tenderers must state names and quotations of sub-contractors. The lowest, or any tender, not necessarily accepted.

Halifax-Dartmouth Bridge Commission
H. J. Egan, Secretary,
140 Roy Building,
Halifax, N. S.

U. S. Government

GOVERNMENT OF THE DISTRICT OF COLUMBIA, DIRECTOR OF HIGHWAYS, D. C., January 31, 1952. SEALED PROPOSALS will be received in Room 509, District Building, 14th and E Streets, N. W., Washington 4, D. C., until 2:00 P. M., Eastern Standard Time, February 21, 1952, and then publicly opened and read for REPAINTING THE SUPERSTRUCTURE OF SOUSA BRIDGE over the ANACOSTIA RIVER in line of Pennsylvania Avenue, S. E. The bridge, built in 1941, is 1,386 feet in length and consists of nine plate-girder continuous type spans of 154 feet each supported on masonry piers and abutments. Each span has four main girders with 36" WF section floorbeams and 21" WF stringers superting the 60' roadway and with cantilever built-up brackets supporting the two 6' sidewalks. The approximate weight of the structural steel is 4,670 tons. Proposal forms and specifications may be obtained without charge from the Office of the Chief Clerk, Engineer Department, Room 427, District Building, Washington 4, D. C. (Telephone NAtional 6000, Extension 2378).

Bids: February 13, 1952

Soil Explorations & Foundation Investigations Southern Westchester Division

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M. eastern standard time, on February 13, 1952 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON THE NEW YORK STATE THRUWAY, SOUTHERN WESTCHESTER CONNECTION - SUBDIVISION No. 11, NEW YORK CITY LINE TO TUCAHOE RD., CITY OF YONKERS, WESTCHESTER COUNTY, WHICH CONSTITUTES CONTRACT NO.. SPEC. SM-27.

Maps, plans and specifications may be examined and obtained at:

a. Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, New York.
b. Mr. J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, New York.
c. Mr. Charles Schaefer, Department of Public Works, 270 Broadway, New York City, New York.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $23,150.00.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $1158.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

B. D. TALLAMY
Superintendent of Public Works

Bids: March 26, 1952

Trunk Sewers & Pumping Station

PORTSMOUTH, VIRGINIA

Sealed proposals will be received by the City Manager of Portsmouth, Virginia, at his office until 10:00 A.M., E.S.T., on March 26, 1952, for the following work:

Division Ea—Trunk Sewers and Suction Mains including 21,000 feet of 8-inch to 18-inch vitrified clay pipe sewer, 7,030 feet of 14 and 16-inch cast iron pipe suction main, and 4,000 feet of 24-inch reinforced concrete pipe force main.

Division Eb—Clifford Street Pumping Station, comprising a brick building 23 feet by 38 feet.

Division Ec—Pumping Equipment, including one 1,250 gpm and two 2,750 gpm electric motor driven pumps.

Each bidder may submit a proposal for any division, all divisions, or any combination of divisions.

Notice to Bidders, Instructions to Bidders, Proposal, Agreement, Specifications, Form of Bond, and Plans can be obtained from the City Engineer, Municipal Building, Portsmouth, Virginia, or Greeley and Hansen, Engineers, 220 South State Street, Chicago 4, Illinois, on deposit of $20.00, all refundable on return of the documents in good condition within 30 days.

A certified check or bank draft in amount of not less than 5 per cent of the bid price must accompany each proposal. Bidders must be licensed as contractors in Virginia. The City reserves the right to waive informalities and reject any or all bids, and to accept the bid which it deems most favorable to its interests.

I. G. VASS
City Manager
Portsmouth, Virginia

OFFICIAL PROPOSALS

Bids: February 28, 1952

Water Filtration Plant

City of Trenton, New Jersey

General Construction	Contract 2
Pumping Equipment	Contract 2A
Electrical Work	Contract 2E
Heating and Ventilating	Contract 2H
Plumbing	Contract 2P
Structural Steel	Contract 2S

Trenton, New Jersey

Sealed proposals will be received by the City Clerk of the City of Trenton, New Jersey, at the Commission Chamber, City Hall, Trenton, New Jersey, on February 28, 1952 at 2:00 P. M. Eastern Standard Time, at which time and place proposals will be publicly opened and read for the Water Filtration Plant; General Construction, Contract 2; Pumping Equipment, Contract 2A; Electrical Work, Contract 2E; Heating and Ventilating, Contract 2H; Plumbing, Contract 2P; Structural Steel, Contract 2S.

Copies of the plans and specifications and blank proposals may be examined and obtained at the office of the Superintendent and Engineer of Water Works, 657 Calhoun Street, Trenton, New Jersey, or at the offices of Bowe, Albertson & Associates, Engineers, Suite 916, 110 William Street, New York 38, New York, after January 28, 1952.

A deposit of fifty dollars will be required for each set of plans and specifications taken from the above offices. The entire deposit will be refunded if a bid is submitted and the plans and specifications are returned in good condition on or before April 1, 1952. After that date no plans or specifications will be redeemed and the entire deposit shall be forfeited. Where no bid is submitted and the plans and secifications are returned on or before the date hereinbefore specified, only one-half the entire deposit shall be returned.

Extra copies of specifications may be obtained at the cost of twenty dollars each and extra sets of plans may be obtained at the cost of twenty-five dollars each, which sums will not be refunded. Extra sheets may be obtained at the cost of one dollar each which sum will not be refunded.

Each bid must be accompanied by cash, certified or cashier's check to the order of the City of Trenton in an amount equal to five percentum of the amount of the bid, and a bid letter from a surety company licensed to conduct business in New Jersey agreeing to furnish a performance bond upon award of the contract.

Each bid must be made upon the blanks included in the "Supplement To Advertisement, Instructions to Bidders, Proposal, Contract, Bond and Specifications for the Construtcion of aWter Filtration Plant," dated, 1952. In the case of corporations not chartered in New Jersey, each bid must be accompanied by proper certificate that such corporation is authorized to do business in New Jersey.

Bids will not be received before or after the time specified for the opening of the bids. Bids submitted before the hour appointed, or thereafter will be deemed invalid and returned unopened to the bidder.

The Board reserves the right to reject any and all bids and to waive any defects or informalities in the bids received.

THADDEUS J. BURNS
City Clerk

DATED: January 24, 1952

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation, Sealed bids (Specifications No. DC-3650) will be received by Bureau of Reclamation, Estes Park, Colorado, until February 28, 1952, and then publicly opened for furnishing labor and materials and performing all work for the construction of earthwork, canal lining, and structures, station 471+89.58 to station 497+61.91, Pole Hill Canal, Estes Park-Foothills Power Aqueduct, Colorado-Big Thompson Project, Colorado. The work is situated approximately 14 miles west of Loveland, Colorado. Principal items are approximately: 25,700 cu.yds. excavation; 1,500 cu.yds. concrete; 15 m.b.m. timber bridges; and other work. Time allowed for completion will be 300 days. For particulars, address Bureau of Reclamation, Estes Park, Colorado; or Building 53, Denver Federal Center, Denver, Colorado.

OFFICIAL PROPOSALS

Bids: February 1, 1952

Soil Explorations & Foundation Investigations—Mohawk Section

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M. eastern standard time, on February 13, 1952 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON THE NEW YORK STATE THRUWAY, MOHAWK SECTION, SUBDIVISIONS 12-D and 13-A, FORT PLAIN TO RANDALL, MONTGOMERY COUNTY.

SPEC. SM. 26

Maps, plans and specifications may be examined and obtained at:

a. Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, New York.
b. Mr. Lacy Ketchum, District Engineer, 109 No. Genesee Street, Utica, New York.
c. Mr. Charles Schaefer, Department of Public Works, 270 Broadway, New York City, New York.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $13,600.00.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $680.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

B. D. Tallamy
Superintendent of Public Works

OFFICIAL PROPOSALS

Bids: February 27, 1952

Miscellaneous Work in New Jersey

Notice is hereby given that sealed proposals will be received in the office of the Director, Division of Purchase and Property, Room 318, State House, Trenton 7, New Jersey, for the following:

Boiler breeching, mechanical piping, platforms and ladders, and electrical work for the Reformatory for Women at Clinton, New Jersey;
Boiler breeching, mechanical piping, platforms and ladders, and electrical work for the Tuberculosis Sanatorium at Glen Gardner, New Jersey;
Boiler breeching, mechanical piping, platforms and ladders, and electrical work for the State Prison Farm at Bordentown, New Jersey;
Boiler breeching, mechanical piping, electric work, structural steel and general construction at the New Jersey State Hospital at Trenton, New Jersey; Platforms and ladders only for the State Colony at Woodbine, New Jersey.

Bids for the above will be received at the office of the Director, Division of Purchase and Property, State House, W. State St., Trenton 7, New Jersey on Wednesday, February 27, 1952 at two (2:00) o'clock, and will be opened and read immediately thereafter.

Bids must be made on the standard proposal form, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than 5% of the amount of the bid, cash, in the amount of 5% of the bid or a bid bond in the amount of 5% of the bid, and must be delivered at the above place on or before the hour named, as no bid will be accepted after the hour specified. Bids not submitted on the standard proposal form or enclosed in other than special addressed envelopes will be considered informal and will be rejected. The Director reserves the right to reject any and all bids and to award contract in part or whole if deemed to the best interests of the State to do so. The successful bidder will be required to qualify for surety bond in the full amount of the contract, of a company authorized to do business in the State of New Jersey.

DEPARTMENT OF THE TREASURY
Division of Purchase and Property
Fred V. Ferber, Director.

EMPLOYMENT

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

CIVIL ENGINEER with sales experience has good opportunity in Pittsburgh territory with large manufacturer in construction field. Must have C.E. degree. Should have experience contacting engineers and contractors. State qualifications in first letter. P-3223, Engineering News-Record.

DESIGN ENGINEER and Design Draftsman, each having a minimum of five years experience in the sanitary engineering field. Salary commensurate with experience and ability. Long established consulting engineering firm located in Maryland. Our employees know of this advertisement. P-3121, Engineering News-Record.

DRAFTSMEN, STRUCTURAL steel checkers and detailers—experienced men only. Excellent working conditions. Structural Drafting Service, 4500 Euclid Ave., Cleveland 3, Ohio. Phone HE 15662.

ENGINEER I for City of New Britain, Connecticut Water Department. Topographical surveys. Property and pipe maps. Hydraulic computations. $3328-3952 per annum. Civil Service Commission, City Hall, New Britain, Connecticut.

ENGINEER, QUALIFIED to head up product development program for association of manufacturers of a fire-resistive product used in building construction. Knowledge of insulated sheet metal work and fire-resistive materials advantageous. Give complete personal history in first letter. P-3187, Engineering News-Record.

(Continued on the following page)

CONSTRUCTION MEN

SUPERINTENDENTS
ENGINEERS (CIVIL)
CONCRETE FOREMEN
BRICK MASON FOREMEN
CARPENTRY FOREMEN

By well established New York General Contractor, operating in New York City, Albany and Newark areas. Public building work, Army and Navy Work, Reinforced Concrete Construction for Public Housing Authorities. Please give outline of exp., age, education, refs., salary expected and when available.

ONLY THOROUGHLY QUALIFIED APPLICANTS CONSIDERED.

Box No. P-3176, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

SHOP FOREMAN AND SHOP MECHANICS

wanted for repairing heavy construction machinery. Permanent steady work at Skaneateles.

A. S. WIKSTROM, INC.
Skaneateles, N. Y.

WANTED
ENGINEER
To head dam division on our consulting engineering staff.

P-3272, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

CLASSIFIED **SEARCHLIGHT SECTION** ADVERTISING

EMPLOYMENT • BUSINESS • **OPPORTUNITIES** • EQUIPMENT—USED or RESALE

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PROPOSALS, $1.25 a line an insertion.

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BOX NUMBERS count as 1 line additional in undisplayed ads.
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AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches —to a page. E.N.R.

NEW ADVERTISEMENTS Address New York Office, 330 W. 42nd St., N. Y. 36, for Feb. 21st issue closing Feb. 11th.

WANTED
Estimators

All around power plant experience including take-off, pricing and current construction costs.

Please forward qualifications, experience and date available to:

GIBBS & HILL
INC.
Pennsylvania Station, New York 1, N. Y.

ENGINEERS

Opportunities now available for men with heavy industrial experience in the following phases of design: mechanical, electrical, structural, piping, civil.

FOR WORK IN OAKLAND HOME OFFICE

Write outlining experience to

KAISER ENGINEERS
Division of Henry J. Kaiser Co.
Dept. A, 1924 Broadway
Oakland, California

WANTED
Construction Superintendent

Permanent position for man experienced in superintending Stone Quarry, Pile driving, Road, Levees and Concrete construction. Give age and personal characteristics. Recent Photo. Detailed experience record of past employment, duties, salary and references. Location in Illinois.

P-3253, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

WANTED

Civil Engineers and Topographic Draftsmen for investigation and planning of flood and low flow control and related projects. Experience in hydraulics and hydrology desirable for engineers, but not necessary. Permanent positions, opportunity for advancement. Address inquiries to

State of Illinois, Division of Waterways
201 West Monroe Street, Springfield, Illinois

POSITIONS VACANT
(Continued from preceding page)

ENGINEERS & DRAFTSMEN; Experienced in design of locomotive cranes, tractor cranes and material handling equipment. Apply by letter stating qualifications, to the Ohio Locomotive Crane Company, Bucyrus, Ohio. Attention Chief Engineer.

EXPERIENCED AND Qualified estimator for general building construction. Must be thoroughly familiar with building plans and experienced in pricing and purchasing for building construction. Applicant should submit a proven experienced record. A very attractive proposition can be offered to a qualified man preferably under 40. Location in Central Texas. P-3009, Engineering News-Record.

HIGHWAY ENGINEERS—Men having following qualifications: experience in street, road, culvert and bridge layout and design; preparation of highway paving plans, final estimates, development design and layout. Good pay for qualified men with training and experience. Opportunity for advancement. Furnish full information regarding education, training and experience, age, references and salary required. Replies strictly confidential. Department of Public Works, Baltimore County, Towson 4, Maryland.

OFFICE MANAGER—Accountant. Permanent position with Mid Hudson Valley construction contactor. Must be capable of taking full charge of all phases of office management. Experience in construction preferred. New apartment immediately available. Submit resume. P-3222, Engineering News-Record.

PRODUCT DEVELOPMENT Engineer Wanted —Must have good technical education background, preferably in Engineering or Architecture, with practical experience in insulations, coatings and adhesives. Must be willing to travel. Liaison activities between Research and Sales in a progressive and well-known insulation manufacturing. P-3249, Engineering News-Record.

PROJECTS MANAGER'S Assistant—for office and field coordination, design and construction, process industry plants. Unusual opportunity in growing department of large and long established construction firm. P-2901, Engineering News-Record.

SEWER SUPERINTENDENT, Middle West. Capable of taking complete charge of large scale municipal sewer installations. Practical experience necessary, engineering background helpful. Give full qualifications, age, references, salary xpected in first letter. Permanent employment to man who can produce. P-3241, Engineering News-Record.

SUPERINTENDENT WITH successful experience on Water and Sewage treatment plants. Location, middle states. Salary open. Permanent position. Write Box 350, Paola, Kansas.

SUPERINTENDENT: Must be experienced in estimating, negotiating field and especially supervise "Gunite". Prepressure Grouting, Concrete and Masonry Restoration. Also New Construction for Railroads, Utilities and Industrial Plants. State age and experience. Salary open. P-2978, Engineering News-Record.

WANTED IMMEDIATELY Superintendent thoroughly experienced to supervise on large canal and levee project in Southeast. Must be good organizer, producer, know men and equipment. Write stating qualifications. P-2925, Engineering News-Record.

WANTED: RECENT graduate Civil Engineer for work in City Engineering Department, eastern Wisconsin City of 30,000 population. Salary from $3000 to $3480 per year. Apply by letter, stating qualifications. Enclose recent photograph. P-3277, Engineering News-Record.

(Continued on the opposite page)

SALES ENGINEER

For employment with a large mid-western plant specializing in the fabrication of steel, steel alloys, and aluminum products in connection with process plants and other equipment for the gas, petroleum and chemical industries. Must be capable of assisting in the administration of sales activities involving promotional sales work, customer contacts, selling, preparation of production orders and general coordination of distribution policies with sales manager. Man with chemical engineering background preferred between the age of 35/45 who has customer contacts in the fabricating and processing field and who has the sales qualifications for dealing with people and coordinating the efforts of a sales organization. This position offers possible advancement to general sales manager.

Write giving background, personal data, and salary requirement—

SW-2939, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

Permanent Positions Open to ENGINEERS

. . . after training at full-time pay . . . as

Consultants in Fire Protection Engineering

to top U. S. and Canadian industry. Usual pension and other benefits. Excellent opportunities; fast-growing engineering organization.

Write complete qualifications to:
P-2807, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

HIGHWAY ACCOUNTANT
WANTED

Accountant experienced in highway accounting and knowledge of Spanish language wanted for Ecuador, South America. Minimum 2 year contract. Salary $6,600. Free of local taxes. Send experience records, references, etc.

Suite 32, 1737 "H" Street, N. W.
Washington, D. C.

CONTACT MAN with connections for well established CONSULTING ENGINEERING FIRM. Twenty-four men: qualified, registered Engineers and Architects specializing in Structural Steel Design, Concrete Design, Plant Layout and Conveyor Design, Structural Steel Detailing, Piping, and Architectural work of any nature. Liberal commission plan.

P-3205, Engineering News Record
520 N. Michigan Ave., Chicago 11, Ill.

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BOX NUMBERS . . .
to expedite the handling of your correspondence and avoid confusion, please do not address a single reply to more than one individual box number. Be sure to address separate replies for each advertisement.

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ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. *Forty-first year.* Write today.
WILSON *Engineering Corp.*
College House Offices - HARVARD SQUARE, CAMBRIDGE, MASS.

POSITIONS VACANT
(Continued from opposite page)

TUNNEL SUPERINTENDENT. Middle West. Capable of taking full charge of tunnel operations in connection with large scale municipal sewers. Give full qualifications, age, references, salary expected in first letter. Permanent employment to man who can produce. P-3244, Engineering News-Record.

WANTED. TOP Notch Superintendent for roads, grading, utilities. Familiar with maintenance of equipment. New Jersey area. Salary commensurate with ability. P-3263, Engineering News-Record.

SELLING OPPORTUNITY OFFERED

SALES ENGINEER for large concern in construction field. Must have degree in civil engineering. Prefer person having experience in contacting engineers, contractors, and promoting federal projects. Desire resident of Washington, D. C., vicinity, where position is located. SW-3139, Engineering News-Record.

EMPLOYMENT SERVICE

SALARIED PERSONNEL, $3,000-$25,000. This confidential service established 1920, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

POSITIONS WANTED

CIVIL ENGINEER, graduate, 18 years broad experience in hydraulics, irrigation, power, flood control, conservation. Qualified reinforced concrete designer. Capable supervisor and administrator. Desire respectable position in Western U. S. with opportunity for accomplishment. PW-3256, Engineering News-Record.

CIVIL ENGINEER Graduate, twenty-eight, single, registered, four and one-half years experience with Consulting Engineer firms, firm background of field work, also office work. Expressway planning, construction supervision and layout; one year experience in Sea Bees. Presently employed, but desires job with more challenge and future. PW-3044, Engineering News-Record.

CIVIL ENGINEER, licensed, early thirties, 10 years experience heavy industrial construction, field and office supervision. PW-3189, Engineering News-Record.

CIVIL-STRUCTURAL Engineer. Age 26, married, registered, 5½ years varied experience. Design, teaching, inspection, specs., supervision. Desires position with consulting engineer or contractor. PW-3190, Engineering News-Record.

CONSTRUCTION MAN—age 36, 15 years diversified experience in field and office in building construction and sewer and water systems. Competent estimator and superintendent. Resume and photo furnished upon request. PW-3090, Engineering News-Record.

ENGINEER-GRADUATE Civil, age 34, 11 years experience; 5 in steel fabrication, 3 in construction, 2 in production, 1 in civil. License civil in Ky. Desire permanent position with young aggressive firm with possibilities of advancement. Southern Ohio and Ind. or Ky. preferred. PW-3251, Engineering News-Record.

AVAILABLE:
CHIEF ENGINEER
Graduate engineer with 17 years experience, primarily estimating and bidding on heavy general construction work. Thorough and analytical knowledge of methods, performance and costs on foundations, mass concrete, piledriving, caissons, tunnels and open-cut; dredging, breakwaters, docks, and cofferdams. Also administrative work. Familiar with office and field engineering and supervision; subcontracts; customer relations in private, municipal, and public works; labor habits. Age 39; salary $15,000 per year.
PW-3169, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

POSITIONS WANTED

FIELD SUPT. Valuable assist to Proj. Mgr. 39 yrs. old. 20 yrs. experience with Field Engineering background. Familiar with rapid construction of large scale housing. Prefab. or conventional. Can handle men and co-ordinate trades from excavating to landscaping. PW-3168, Engineering News-Record.

GENERAL CONSTRUCTION Superintendent, experienced in concrete bridges, highways, airports, asphalt paving, and all types of sewer and water main Installations. Industrial buildings, Mechanical Installations, Marine Piledriving, 20 years Experience, Sober, will travel and relocate, age 50, not a college graduate. PW-3269, Engineering News-Record.

GENERAL FOREMAN, 20 years experience, all phases of highway construction. Can organize and manage any size job. Available at once. PW-3167, Engineering News-Record.

GENERAL SUPERINTENDENT 48—25 years experience—heavy construction, highways, airports, bridges, powerhouse, cofferdams, tunnels, sewage systems, heavy industrials, have following of experienced men. Now employed but available for long term employment. PW-3023, Engineering News-Record.

PROJECT ENGINEER—Successful controlling progress and costs of institutional and commercial construction. Excellent estimator and contract negotiator. PW-3174, Engineering News-Record.

PROJECT MANAGER. Long experience in building and heavy construction, available Feb. 15. Can furnish key personnel for CPFF contracts. Registered C.E. PW-3268, Engineering News-Record.

PROJECTS MANAGER, Construction Supt., Engineer 47, sober, reliable, 25 years experience supervising commercial, Industrial, Mechanical and public buildings. Southeast preferred. PW-3088, Engineering News-Record, New York 36, N. Y.

SUCCESSFUL TOP Monumental building and heavy construction man presently in charge of all work for internationally known long established construction company desires immediate change. PW-2585, Engineering News-Record.

SUPERINTENDENT 25 years construction experience, bridges, dams, disposal plants, pumping stations, concrete structures, sewer and water systems, heavy excavation rock and soil, waterfront work, etc. Good organizer, know men and equipment, familiar with labor and material costs and distribution. Available immediately, any location. PW-2991, Engineering News-Record.

SUP'T OR Ass't Grad. Eng. 3 yrs. exp. private, public buildings, heavy const'n Refer. Travel car. PW-3271, Engineering News-Record.

TRACK AND Special track-work Specialist. Railroad, subway, elevated, street railway and special track-work experience. Tee rail and Girder rail work. Broad engineering and construction experience, especially in the transportation field. Thirty-five years experience in private industry and government activities in design, construction and economic fields. Availability is dependent upon the location and incentives offered; whether on a full-time or part-time basis. PW-3034, Engineering News-Record.

CIVIL ENGINEER, 28, veteran, 49 grad., 2½ years construction experience, desires permanent position field and/or office, N. J. Area preferred. Resume furnished. PW-3166, Engineering News-Record.

SELLING OPPORTUNITY WANTED

SALES REPRESENTATIVE Available for St. Louis district. Construction, Building, Industrial Equipment, Tools. Experienced salesman and organizer. RA-2952, Engineering News-Record.

WANTED
Large engineering firm wishes to acquire several complete plants through purchase of (1) capital stock, (2) assets, (3) machinery and equipment, whole or in part. Personnel retained where possible, strictest confidence.
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Our Liberal *Profit-Sharing Bonus* in 1951 amounted to more than a half million dollars.

We need the following type of men experienced in any phase of Blast Furnace, Steel Mill and Oil Refinery Design:

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Positions available in our offices at Cleveland, Ohio, Union, New Jersey and Tulsa, Oklahoma.

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For detailing Reinforcing Steel, Steel Windows, Steel Joists and similar products. Only those experienced this or allied fields will be considered. Permanent position to qualified applicants. Air conditioned office, 40-hour week, overtime, hospitalization and group insurance plans, paid vacations. Location Richmond, Virginia.

Reply giving brief resume of experience, education and salary expected.

P-3106, Engineering-News-Record..
330 W. 42 St., New York 36, N. Y.

COST ENGINEER
(Construction)
California assignment open to graduate Mechanical Engineer with wide cost experience on heavy construction. Excellent opportunity to associate with a leading engineering and construction firm. Your reply will be held confidential.
Please write immediately giving complete qualifications.

P-3132, Engineering News-Record
68 Post St., San Francisco 4, Calif.

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DIESEL ELECTRIC DERRICK BOAT

25 ton capacity
Located at Pier #8, East River, N. Y. C.
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Will be Sold in Whole or in Part at Public Auction
Thursday, February 14th at 12:00 NOON

Measurements: Length overall .....105'6"
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Built and assembled in 1942-43

Machinery: National 3 drum Electric Hoist with General Electric motor, 125 HP at 690 RPM.
Fairbanks Morse Diesel Generating Set 160 HP at 1200 RPM, 8 cylinder.
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Many other parts and equipment too numerous to list.

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5600 CFM 42 x 25½ x 30, 930 HP, SYN. 138-½ RPM
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2—Eimco 40 Muckers 24 in. Gage
3—Eimco 21 Muckers 24 in. Gage
2—Diesel Locomotives 24 in. Gage
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3—33KVA Single Phase 6600/2300 V. Transformers
1—Cat. Diesel Electric Generator 75KVA
1—2 Jib G.D. Jumbo 24 inch
2—Gould Locomotive Batteries 48 cell 17 plate
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5—Exide Locomotive Batteries 45 cell 15 plate
5,600 ft.-6 in. Invasion Pipe with couplings
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3—75KVA Single Phase 2300/440 V. Transformers
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Also additional driving and concreting equipment. Condition Good—Reasonable Prices.

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Used Tractors, Graders, Scrapers:

4 Allis Chalmers HD-10W
bare or with DDPCU and angledozers
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all with hydraulic angledozers
5 International TD-14
all with hydraulic angledozers
3 Caterpillar D-6
one with cable bulldozer, two with hydraulic angledozers
4 Caterpillar D-7
in 3T series with angledozers or bare
4 Caterpillar D-8
in series 2U9000 and up, bare or with angledozers
3 Caterpillar No. 12 Graders
9K series with scarifiers

Please state serial number, price, physical condition, place of inspection, etc.

RICHARD LEWIS
Engineering Section
1186 Broadway, New York 1, N. Y.

SEARCHLIGHT SECTION

This index is published as a convenience to the readers. Every care is taken to make it accurate, but SEARCHLIGHT SECTION assumes no responsibility for errors or omissions.

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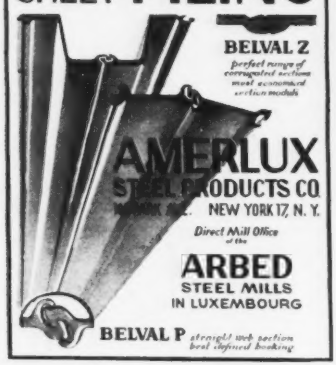

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Stress distribution
Lateral earth pressures
Compaction of soils
Exploration of soils
Selection of a foundation
Spread foundations
Pile and caisson foundations
Earth-retaining structures
Dam design
Repetitional loading of soils
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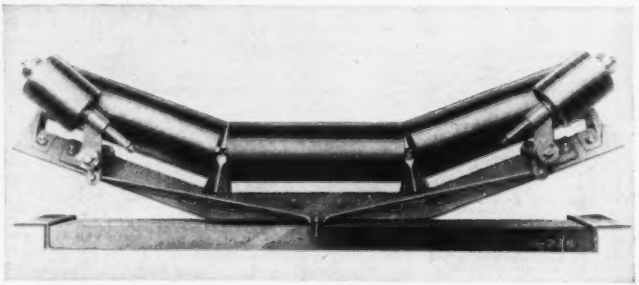
Overshot loader sports two major improvements

The two new features in the Austin overshot loader Models 4C and 6C are readily apparent in the above photo. The first is a front end power takeoff which supplies power to the bucket independent of the main transmission system. This allows the operator more flexibility for faster operation of the machine, particularly since only one lever operates the entire bucket cycle. The second feature is the laminated wrap-around chain which has replaced the old wrap-around cable used to raise and lower the bucket. The bucket is now actuated through two of these laminated, wrap chains, one on each side of the loader. In digging position, the laminated chain is on small diameter hub for maximum pull. As the bucket lifts and the need for power grows less, the chain meanwhile rolls up on itself, giving uniformly accelerated speed to the dumping position.

Rated bucket capacity for the 6C shown above is 1½ cu yd, with a 15-sec loading cycle. It is rated for crawler tractors with 15,500-lb minimum draw-bar pull.

Several other structural changes have been made to lengthen the service life of the loader and all gears and wearing parts have been designed to need maintenance only when the tractor is down for its normal overhaul. Four models from 1 to 3¼ cu yd bucket capacity are manufactured. JOHN AUSTIN, INC., 2 SANTA FE DRIVE, DENVER, COLORADO.



Belt-training carrier

These new units are particularly effective and on most conveyor belt applications need only be installed at intervals of 50-100 ft. The training rollers respond instantaneously to any shift of the belt off dead center and tilt the carrier into an angular position

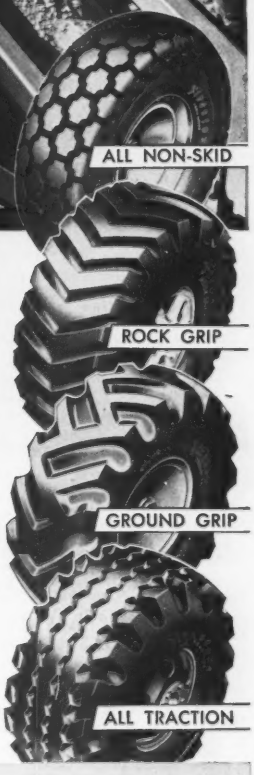
(*Continued on page 98*)

BUILD PROFITIME...CUT DOWNTIME-

with

Firestone

OFF-THE-HIGHWAY TIRES



THAT's right! You increase yardage and profits and reduce operating cost when your equipment rolls on Firestone. That's just what the Firestone Earth Mover All Non-Skid tires are doing in the illustration above. This tire is engineered and built for free-rolling wheels — for scrapers, wagons, and buggies — equipment on which maximum flotation, frictional traction, and low rolling resistance are essential. And it holds on slopes without side-slipping.

Firestone Tires stand up longer because they are *built for the job and they are built to take it.* Extra tough, heavy treads give more traction under all conditions. Gum-Dipped rayon cord bodies are reinforced with four extra impact plies and can be retreaded again and again. Tough sidewalls are double-thick and snag-resistant.

Whether it's earth moving, strip mining or rock work, Firestone has the tires and the service that will cut downtime and keep men and equipment on the job. Try them and see for yourself.

WHEN YOU BUY NEW EQUIPMENT OR REPLACEMENT TIRES, SPECIFY FIRESTONE

**Enjoy the Voice of Firestone on radio or television every Monday evening over NBC*

Copyright, 1952, The Firestone Tire & Rubber Co.

WITH A

SAUERMAN SCRAPER

CRAWLER DRAGLINE AND SCRAPER

Here is a Crescent scraper rigged with crawler dragline to convert the dragline into a slackline unit that reaches several hundred feet and moves gravel from river onto bank.

SCRAPER STOCKPILING

A concrete construction project required storage of a large tonnage of aggregate on ground between railroad and mixing plant. Two Sauerman scraper machines, one of which appears in picture, stored and reclaimed 2,000 tons of material a day.

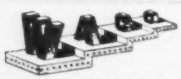
In a Sauerman Power Drag Scraper you find a profitable combination of digging power, haulage speed, long reach, simple operation and economical maintenance. It cuts costs to the bone on jobs of digging and hauling earth or bulk materials distances from 100 ft. to 1,000 ft. or more.

A Sauerman machine is particularly useful where ground conditions are difficult. It gives good results on such diverse work as the digging of tightly packed gravel, movement of sticky clay, handling of waste material, bulk material stockpiling, removal of sludge from settling ponds and so forth. In digging from a high hill it overcomes the hazards of caving walls.

The operator of a Sauerman machine has finger-tip control of the entire operation. Automatic shifting of the tail end of the machine is provided where desired. Any workman is readily trained as an operator. Power requirement is moderate. Installation and upkeep costs are surprisingly low.

Write for the new 24-page Sauerman Scraper catalog and tell us about your material handling problems.

SAUERMAN BROS., Inc.
532 So. Clinton St. Chicago 7, Ill.



ALUMINUM FABRICATION

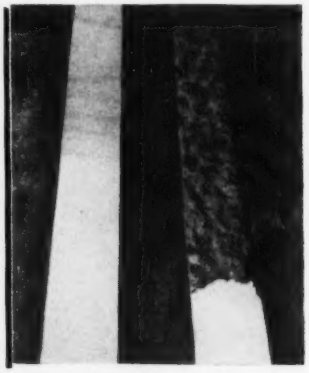
WACO's modern facilities are available for all types of aluminum fabrication: completely equipped for production of aluminum structural components and sub-assemblies. Your inquiries are invited.

WASHINGTON ALUMINUM CO., Inc.
BALTIMORE 29 MARYLAND

Typical example of heavy plate and angle riveted assembly fabricated in WACO shop

New products . . .

with respect to the direction of belt travel. This quickly returns the belt to center and the carrier resumes its normal position. Edge wear of the belt is negligible with this carrier and its use insures against possibility of serious belt damage due to improper training. Available along with other standard and special carriers from STEPHENS-ADAMSON MANUFACTURING COMPANY, AURORA, ILLINOIS.



Permanent traffic lines

Called "Perma-Line" by its inventors, this new type plasticized traffic line has demonstrated its permanency—as certified by the Pittsburgh Testing Laboratory. The patented Perma-Line method, employing specially constructed machines, incrustates roadways with hot or cold plasticized filler 2 to 6 in. wide and ¼ in. deep, which, upon curing and hardening, becomes an integral part of the road itself. By changing the ratio of chemicals of the filler, the product's coefficient of expansion can be adjusted to be identical with that of the road in which it is laid, thus making it equally adaptable to concrete, asphalt, macadam, or brick surfaces.

Repeated tests have found the Perma-Lines impervious to pounding, absorption of moisture or chemical reaction from rock salt. Level with the road, they cannot be scooped out by snow plows. Moreover, the lines remain white continuously, the rubbing action of tires serving merely to polish them. PERMA-LINE CORPORATION OF U. S., 10 WEST 47TH STREET, NEW YORK 19, N. Y.

Continuity tester

A new pocket-size continuity tester has been designed to determine continuity of circuits and to identify wires between terminals or in multi-wire

(*Continued on page 103*)

Here's Double Quick Convertibility

Hydrocrane to Hydrohoe in less than 4 hours

For high-speed front-end convertibility, the Bucyrus-Erie Hydrocrane heads the list. The J. P. Construction Company, Chicago Heights, Ill., reports converting from crane to dragshovel front-end *in less than four hours* — with only the operator and one other man.

Here's How This Owner Does The Job — First the crane boom is lowered onto two specially-designed tripods. Necessary fittings are disconnected and the truck driven away. Next, truck is backed up to the dragshovel front-end which is held parallel to the ground by means of another tripod and the Hydrohoe dipper resting on the ground. Fittings are connected and the Hydrohoe is ready to begin work. Converting back to crane front-end is equally simple.

The owner remarked that the crane's fast convertibility not only means time saved on his own jobs, but it permits crane rental without fear of lost time converting back to the attachment needed on his own work.

Get full details on the fast-working, fully hydraulic Hydrocrane and Hydrohoe. Send the coupon today.

HERE the Hydrocrane digs a manhole. Every operation fully hydraulic — boom hoist, line hoist, swing, boom telescope, outrigger set and retract and bucket close. Available with crane hook, magnet, grapple, catch basin cleaning bucket and material handling bucket.

A quick field conversion — and here's your Hydrohoe. This smooth-digging outfit provides two separate digging actions: first, by means of a hydraulic ram located between boom and dipper handle; second, by telescoping the boom. This exclusive telescope feature eliminates moving truck back and forth when digging out boulders and excavating across pipe and cable — permits digging a level, scallop-free trench.

Bucyrus-Erie Hydrocrane Division

South Milwaukee, Wisconsin

South Milwaukee — BUCYRUS ERIE HYDROCRANE — Wisconsin

Gentlemen: Please send Hydrocrane literature ☐
Please send Hydrohoe literature ☐

Name.....

Company.....

Address.....

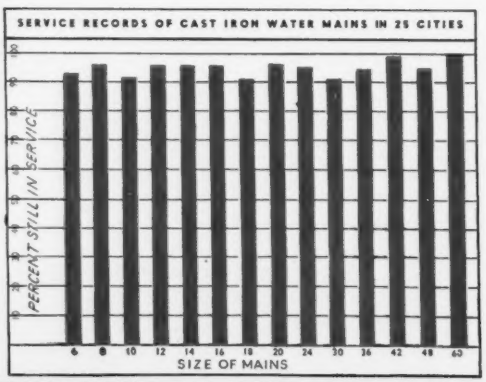
City..... State.....

130H51C

No doubt about the stamina

AMERICA PROVES IT! The above map shows cities having some or all of their *original* cast iron water or gas mains still in service. The red stars indicate 34 cities having cast iron water or gas mains in service that were laid a century or more ago.

SURVEYS PROVE IT! A recent study directed by 3 Water Works Associations shows that 96% of all cast iron water mains, 6-inch and over, *ever laid* in 25 representative cities, are still in service.



CAST IRON PIPE

of CAST IRON PIPE...

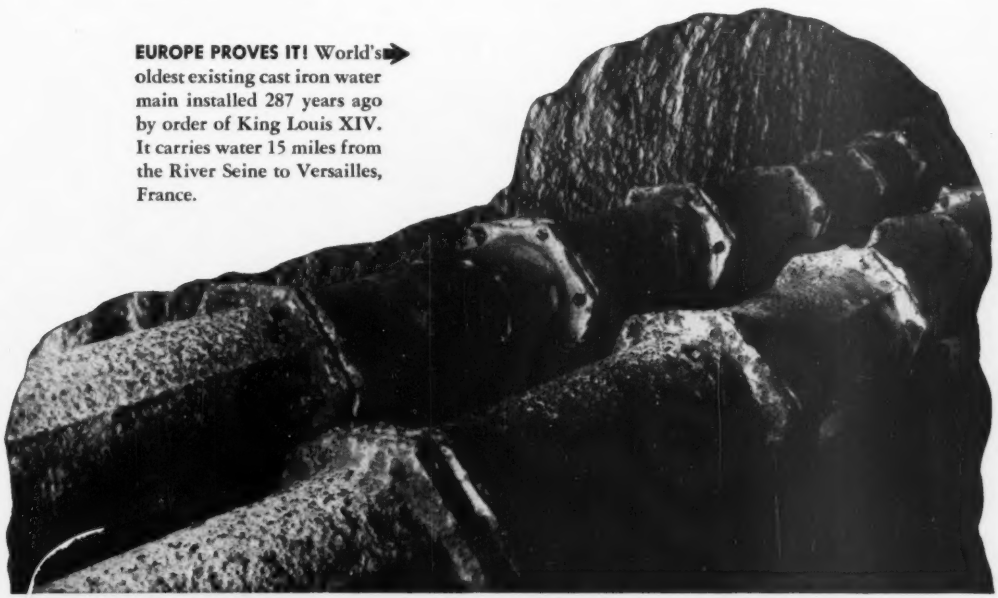
Europe proves it! The oldest cast iron water mains in the world, by authenticated records, supply the town and parks of Versailles, France. They were installed in 1664 and are still functioning after 287 years of service. Other cities in France, Germany and the British Isles have cast iron mains in service that are over 100 years old.

America proves it! Original cast iron mains are still serving 57 of America's largest cities. And 34 cities have either cast iron water or gas mains in service that were laid over 100 years ago (see map).

Surveys prove it! An exhaustive study, directed by a Joint Committee representing 3 Water Works Associations, shows that 96% of all cast iron water mains, 6-inch and over, *ever laid* in 25 representative cities, are still in service (see chart).

Yes, history proves beyond doubt that cast iron pipe has the stamina and the strength-factors that pipe must have to serve dependably under the paved streets of cities, towns and villages.

EUROPE PROVES IT! World's oldest existing cast iron water main installed 287 years ago by order of King Louis XIV. It carries water 15 miles from the River Seine to Versailles, France.



CAST IRON PIPE RESEARCH ASSOCIATION; THOS. F. WOLFE, MANAGING DIRECTOR, 122 SO. MICHIGAN AVE., CHICAGO 3.

SERVES FOR CENTURIES

they're custom-built to fit the job!

Work boats, pleasure craft

Drilling rigs, centrifugal pumps, generator sets

Earthmovers, logging yarders and loaders

Buses and highway trucks

Off-highway trucks, crawler tractors

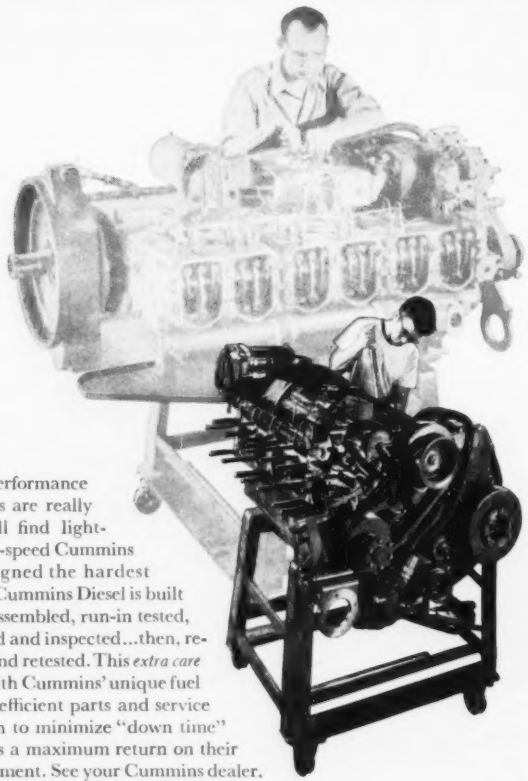
Shovels, cranes, industrial locomotives and switchers

Lightweight, high-speed Diesels (50-550 hp) for these and many other uses

Cummins® Diesels do so many jobs so much better

they're

BUILT NOT ONCE BUT TWICE



Wherever performance requirements are really rough, you'll find lightweight, high-speed Cummins Diesels assigned the hardest jobs. Every Cummins Diesel is built *TWICE*—assembled, run-in tested, disassembled and inspected...then, reassembled and retested. This *extra care* combines with Cummins' unique fuel system and efficient parts and service organization to minimize "down time" ...give users a maximum return on their diesel investment. See your Cummins dealer.

CUMMINS Dependable DIESEL

TRADEMARK REG. U.S. PAT. OFF.

Diesel power by CUMMINS

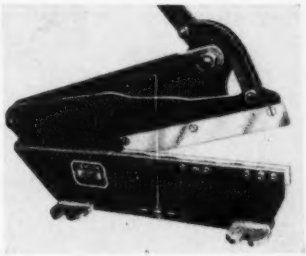
CUMMINS ENGINE COMPANY, INC., COLUMBUS, INDIANA

Export: Cummins Diesel Export Corporation • Columbus, Indiana, U.S.A. • Cable: Cumdiex

New Products . . .

cable of switchboards and control panels, etc.

It permits testing of circuits without use of live wire connections, since it provides its own power from pen-lite batteries. A signal light indicator illuminates the point of contact. It requires only one hand, leaving the other hand free to hold circuit diagrams or blueprints. Fine for electricians, building and plant maintenance men, it is available from IDEAL INDUSTRIES INC., 1368 PARK AVE., SYCAMORE, ILLINOIS.



Sheet metal shear

The Samson No. 40 slitting shear has a blade length of 14 in., which makes it suitable for cutting wide strips of light gage metal in one stroke of the lever. An offset frame permits slitting sheets of any length or width, and the machine will cut wide sheets faster and with fewer strokes of the lever than shears with shorter blades, according to the manufacturer.

The shear's capacity is $\frac{1}{8}$-in. mild steel plate and net weight is 140 lb. The Model 40 has two lettered suffixes, S and C. The S is for straight blade as shown; the C for shearing corrugated metal up to 16 gage. JULIUS BLUM & COMPANY, INC., 540 WEST 22ND STREET, NEW YORK 11, N. Y.

Pavement forms are self-aligning

Newer, bigger self-aligning paving forms are available in sizes above 12 in. and can be furnished in any height required by specifications for airport paving to meet requirements of thicker pavement slabs needed to withstand greater concentrated wheel loads of heavy bombers and cargo planes.

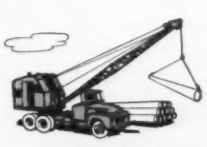
Made of $\frac{1}{4}$ in steel plate with base width equal to the height, the ends of each 10-ft. section are reinforced by heavy angles welded to the base and web. Beveled steel pins slide into pipe guides, providing a simple, rugged connection, aligning the forms perfectly under all conditions and maintaining that alignment during subsequent paving operations.

(Continued on next page)

SAVE MONEY on these jobs with a low-cost BANTAM®

- ☐ Loading sand, gravel
- ☐ Erecting steel
- ☐ Pouring concrete
- ☐ Handling pipe, timbers
- ☐ Digging foundations and footings
- ☐ Driving piling
- ☐ Trenching for pipelines
- ☐ Stockpiling materials
- ☐ Digging and cleaning ditches
- ☐ Excavating small pits
- ☐ Building access roads
- ☐ Removing overburden
- ☐ Repairing slides, washouts
- ☐ Feeding portable crushing plants
- ☐ Misc. clearing and grading

Why go to the expense of moving in big equipment, or special work crews, when hundreds of jobs like those listed at the right can now be handled faster, more economically with a job-proved Bantam. *Costs only a fraction of the price of bigger machines* . . . mounts on new or used truck for high-speed mobility . . . has 8 fast-change attachments, with big work capacity, for profitable year 'round operation. Ideal for scattered assignments or crowded locations, where bigger, heavier machines can't go. Write for literature. Schield Bantam Co., 201 Park St., Waverly, Iowa, U. S. A.



Bantam crane lifts 5 tons, handles ½ cu. yd. concrete bucket, 1400 to 2400# pile driver. Booms up to 50'.

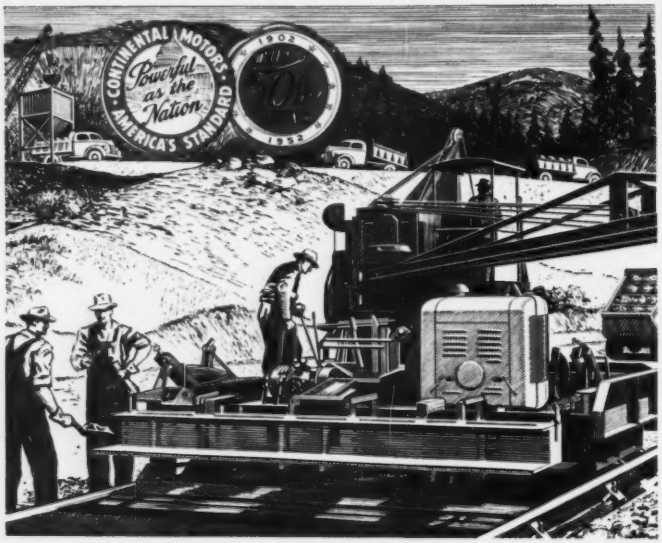
Back hoe digs 100' of 5' trench per hr. Depths to 14'. Fast-change adaptors for hoisting and backfilling.

Shovel or dragline loads up to 90 cu. yds. of material per hr. Drives anywhere... goes right to work.

SCHIELD BANTAM

Cranes • Excavators

Get more jobs done at less cost



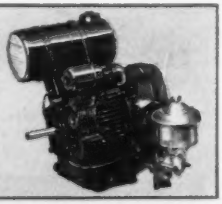
Speed the Job . . . and Cut the Cost . . . with

DEPENDABLE RED SEAL POWER

Continental Red Seal power is saving money for owners of specialized equipment used at every stage of highway construction, maintenance and repair, from preliminaries on through final grading.

You find Red Seals of varying sizes and specifications in more and more leading makes of shovels, cranes, conveyors, draglines, winches and pumps at the pit; in trucks hauling materials to the job; in mixers, trenchers, earth-movers, spreaders, rollers, and other machines at the job site. They deliver their full work quota at lower cost, with less down time, because each is engineered expressly for its job—built to do one thing and do it well.

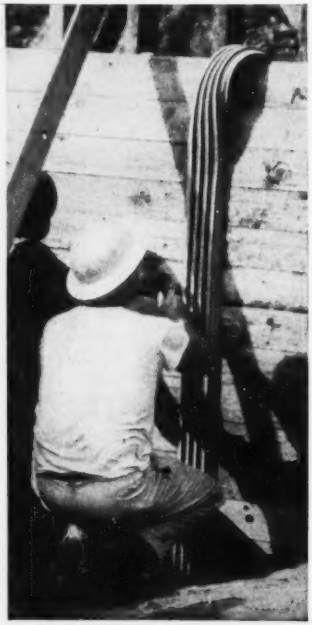
MODEL AA7 . . . In addition to 4- and 6-cylinder liquid-cooled engines from 13 to 188 h.p., Continental builds 10 four-cycle air-cooled models for a wide range of industrial uses requiring from 1½ to 2½ h.p. They are backed by service and parts in every community. For information on this line, please address Air-Cooled Engine Division, 12800 Kercheval Avenue, Detroit 14, Michigan.



Continental Motors Corporation
MUSKEGON, MICHIGAN

New Products . . .

A heavy, perforated steel bar supported by the stake pockets and welded to them, provides a rigid support for the ends of the pavement dowel bars. The spacing of holes in this support and in the web of the form can be varied to meet specifications. The self-aligning feature is said to permit rapid form setting regardless of whether the steel stakes are bent or forced off plumb when driven into hard or stony subgrade. BLAW-KNOX DIVISION, BLAW-KNOX COMPANY, FARMERS BANK BUILDING, PITTSBURGH 22, PA.



Plastic water stop

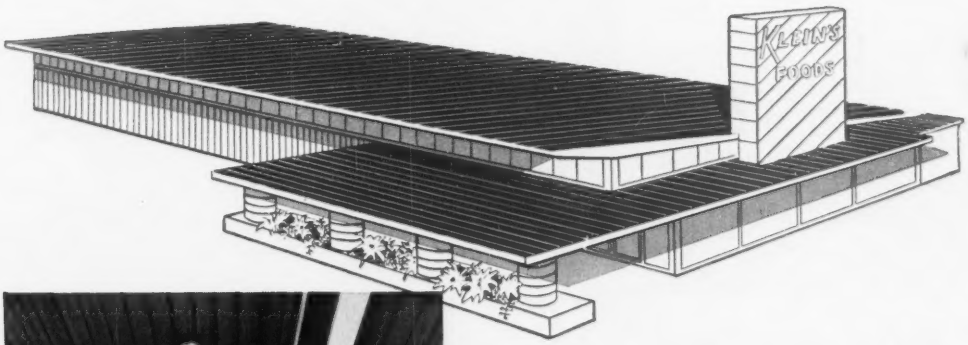
To eliminate leakage between joints on block pours, the workman here is installing one made of Geon polyvinyl plastic which provides superior aging characteristics, extreme resistance to the chemical action of concrete, and resistance to temperature changes that occur while concrete is poured and sets up. The plastic joint seal is a central rib backed by a U-shaped groove and weighs 2.02 lb per ft. The uniformity characteristic of Geon is highly important in extrusions of this size. The finished seal is rolled into 100-ft strips which are cut to desired lengths by a saw or knife at the construction location.

The job pictured here is the Guayabo Hydroelectric Project, now under way near El Salvador, Cen-

(Continued on page 106)

For an ultra-modern Super Market...

A ROOF THAT'S A CEILING, TOO!



...IT'S WHEELING TRI-RIB STEEL ROOF DECK!

Because of Tri-Rib's pleasing appearance, underfinish was *omitted* — deck sheets themselves forming the "ceiling" — fixtures fastened *directly* to roof structure, as seen in the first picture at left.

Because of Tri-Rib's lightness, longer span joists and lighter roof structure, lighter and *fewer* supporting members were used, thus saving a considerable tonnage of structural steel compared to other types of roof construction. Other two pictures show the store's spaciousness.

Because of Tri-Rib's ease of installation, Sebco Construction Company saved time ... saved money on this Minneapolis super-market.

Made of Cop-R-Loy, Tri-Rib is designed to specifications adopted by A.I.S.I. for light-gauge structures.

LIGHTER! FASTER! LOWER COST!

WHEELING CORRUGATING COMPANY
WHEELING, WEST VIRGINIA

Atlanta Boston Buffalo Chicago Columbus Detroit Kansas City
Louisville Minneapolis New Orleans New York Philadelphia Richmond St. Louis

Wheeling

MOVE BIG LOADS

faster, safer, for less!

with LaCROSSE trailers

To save costly delays and special handling charges, this ingenious contractor simply drove his La Crosse flat bed *right into the manufacturers' plant* under this huge 12½ ton ready-mix storage silo — lashed it securely into position — and drove it away in a few minutes. You, too, can save time, trouble and money by *doing your own equipment hauling* on job-proved La Crosse trailers. Choice of flat, drop, or tilting platforms—6 to 67 tons capacity. Write for free descriptive literature.

LC-22

Up to 2000 lbs. less dead weight per trailer.

Stronger goose-neck construction.

Safer, more dependable brakes.

Stronger specially-built axles.

Check Today!

LA CROSSE TRAILER CORPORATION, La Crosse, Wis.

☐ Rush complete information on La Crosse trailers:
☐ Specifications ☐ Prices ☐ Delivery
☐ Send name of nearest La Crosse Distributor.
☐ We may buy a ..... ton trailer about ..... (date)

Name..... Title.....
Employed by.....
Address.....
City..... State.....

LaCROSSE

America's Favorite **LOW BED TRAILER**

New Products . . .

tral America. Here a typical pour is a horizontal block 50 ft square and 5 ft thick.

Heretofore, rubber and copper seals had to be joined by vulcanizing and brazing operations, respectively. Joining or welding the thermoplastic vinyl strips is done at the installation site by merely applying sufficient heat to the loose ends with an electrically heated knife or gasoline torch, also eliminating waste of short pieces. A seal strip of different design, using the same principle, is being developed for construction joints where large shrinkage is expected.

Use of the plastic seal is recommended in architectural concrete structures above ground level, for joints in foundation walls, or between foundation walls and floors, and all types of hydraulic structures subject to water pressure, except where larger shrinkage openings than ¼ in. are expected. B. F. Goodrich Chemical Company, 324 Rose Building, Cleveland 15, Ohio.

New Product Briefs

United States Radiator Corporation is now offering a new and safer **gas-fired unit heater** which is fully approved for natural, mixed manufactured and propane gas. The five new models have heat input of 55,000 to 200,000 B.T.U. For further information write **United States Radiator Corporation, 300 Buhl Building, Detroit, Mich.**

Concrete Glaze, a fast drying, clear varnish is especially recommended for concrete floors and other concrete surfaces subjected to wearing action of hand trucks, heavy drums, material handling conveyances and other traffic. Brushed or sprayed on concrete, it dries to touch within an hour, may be walked on between 3 to 4, and will take heavy traffic after 24 hours. Made by **Rex Home Supply Company, 142 South Highland Avenue, Ossining, New York.**

Lubri-Cut is a new special **cooling and lubricating agent** for taps, drills and cutting tools. Manufactured by the **Tap and Drill E-Z Corp, 11033 Hawthorne Boulevard, Inglewood, California,** it is available in both paste and semi-paste form. It permits tolerances in the millionths and is equally efficient when used on hard and soft ferrous and non-ferrous metals, on plastics or glass. Free samples are available from the company.

ROCK RATED

TO GIVE YOU MORE YEARS OF PROFIT

P&H MAGNETORQUE* ELECTRIC SWING

SAVES YOU TIME, TROUBLE, MONEY!

Bring on your heaviest going! The 955-A is ready for it! It's the 2½ yd. companion of the famous P&H 1055 — with all its proved engineering — tough all-welded construction — greater stability — live roller circle — adjustable hook rollers — and many other advancements that assure years of hard service with minimum cost.

Operating advantages? More than you've ever known in a machine of its size. Magnetorque Swing does away with the old swing frictions — with all their headaches — forever. It's faster — 15% to 25% faster.

Ask us where you can see one in operation. Learn what "ROCK RATED" really means.

*T. M. of Harnischfeger Corporation for electro-magnetic type clutch.

P&H **EXCAVATORS**
4404 West National Avenue
Milwaukee 14, Wisconsin
HARNISCHFEGER CORPORATION

EXCAVATORS • OVERHEAD CRANES • HOISTS • ARC WELDERS AND ELECTRODES • SOIL STABILIZERS • CRAWLER AND TRUCK CRANES • DIESEL ENGINES • CANE LOADERS • PRE-ASSEMBLED HOMES

Mobile CONCRETE MIX PLANT

21-FOOT discharge

KOEHRING 16-E *twinbatch,*

with 6 m.p.h. rubber-tired mobility and high elevating boom, has unlimited application on all types of concrete construction work . . . for buildings, retaining walls, pilings, culverts, bridges, tunnels, widening highways and airport strips, batching into trucks, etc. Bucket rides on 60° elevating boom . . . discharges controlled batch into overhead forms, hoppers or chutes at a dumping height of 21 feet (higher with special boom). Boom also swings in an arc of 160° . . . speeds pouring of floors, foundations. This heavy-duty 16-E easily mixes and distributes up to 50 cu. yds. per hour. 7-second skip hoist, split-second Autocycle mixing controlled by Koehring Batchmeter, and vertical syphon-type water tank, all assure consistent, maximum-strength concrete at top batching speeds.

Productive work-time is increased because mobile, rubber-tired 16-E works over pavement without planking, makes self-powered moves job-to-job at 6 m.p.h. Get more facts from your Koehring distributor, or write for literature.

KOEHRING CO., Milwaukee 16, Wis.
(Subsidiaries: **JOHNSON • PARSONS • KWIK-MIX***)*

KOEHRING HEAVY DUTY

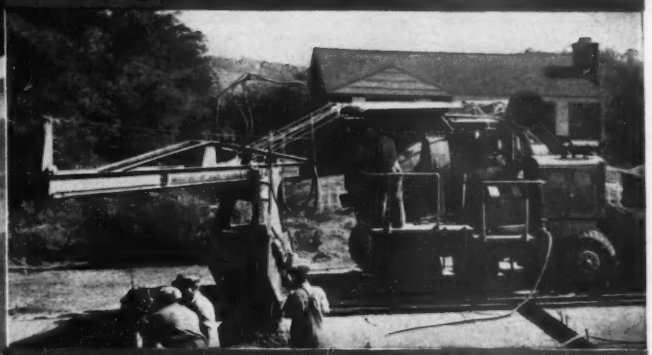
KOEHRING 16-E *twinbatch*®

height

CONTROLLED-DISCHARGE BUCKET

has clamshell-type door, hydraulically controlled . . . can be opened or closed at any time for gra[illegible]

24 cu. ft. water-level capacity is more than ample for the full 16 cu. ft. concrete [illegible]



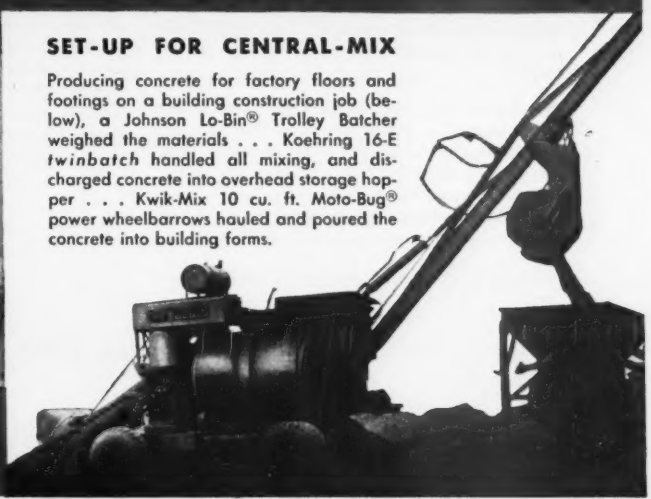
BOOM SWINGS IN [illegible]

. . . double-channel distributing boom on the Koehring 16-E twinbatch is power con[illegible]

and elevates 50° . . . is self-locking and holds securely in any position for accu[illegible]

SET-UP FOR CENTRAL-MIX

Producing concrete for factory floors and footings on a building construction job (below), a Johnson Lo-Bin® Trolley Batcher weighed the materials . . . Koehring 16-E *twinbatch* handled all mixing, and discharged concrete into overhead storage hopper . . . Kwik-Mix 10 cu. ft. Moto-Bug® power wheelbarrows hauled and poured the concrete into building forms.



Ask, too, about production advantages of big 34-E *twinbatch* and Longitudinal Finisher for highway, airport, other major [illegible] jobs.

"This is where we came in . . ."

The picture that's coming up on the "news reels" now is one that we all remember. Once again Uncle Sam is a big machinery customer with first call on output.

This doesn't mean that we can't take care of our old customers . . . but it may mean that we can't do it as promptly as you've learned to expect. You may have to wait a bit longer for that new shovel, dragline or crane. But it's in a worthy cause . . . and to compensate, may we suggest that you take a little extra care to make your present equipment last?

We're not suggesting that you *pamper* the machines. Lima equipment is designed and built to take a terrific beating, and you can keep right on demanding a full day's work from every unit. But almost every piece in service gets some *unnecessary* punishment, because proper maintenance is neglected. If you focus on proper care—which every good piece of machinery deserves—you'll keep the Lima's at their working peak considerably longer.

For further information
write to
BALDWIN-LIMA-HAMILTON CORPORATION
Lima-Hamilton Division
Lima, Ohio, U. S. A.

OFFICES IN PRINCIPAL CITIES OF THE WORLD

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SHOVELS • CRANES • DRAGLINES • PULLSHOVELS • TRUCK CRANES

MANUFACTURERS' PUBLICATIONS

Discharge valve for high and low heads—A new 16-page color-illustrated bulletin No. 156 features the Howell-Bunger free discharge valve for high and low heads. The chief advantage of the valve is the prevention of pot holes in the bed of a stream since the water is discharged in the form of a fine spray. Other advantages are explained in detail along with cutaway views, numerous illustrations of the valves in action and detailed specifications. S. MORGAN SMITH COMPANY, YORK, PA.

Automatic alarms—Any responsible individual in an industrial plant, refinery, municipal installation, hospital, dam, sewage plant, or numerous other locations who is in need of emergency alarms for conditions of liquid level, pressure, temperature, smoke, gas, etc. will be interested in the new Autocon Multalarms. A new bulletin (7411) featuring the alarm shows multiple station panel units which provide three-way protection. One important feature of the instrument is an automatic reset that eliminates human error and provides continuous visual indication until the emergency condition is corrected. They can be arranged with any number of stations and alarms. Additional information available from AUTOMATIC CONTROL COMPANY, ST. PAUL, MINNESOTA.

Service for contractors—Any contractor interested in contract drilling service, contract shaft sinking or mining and geological consulting will want this concise 4-page booklet describing these three services available to them. The drilling service is available for periodic or long-range drilling program. Shaft sinking crews with wide blasting and mucking experience are available for drifting and shafting, and a full staff of geologists and mining engineers can help with appraisals, leases, etc. In addition the company manufactures various kinds of drills, (portable, truck-mounted and others) which are described and illustrated. E. J. LONGYEAR COMPANY, FOSHAY TOWER, MINNEAPOLIS, MINNESOTA.

Maintenance guide comic book—This is a cartoon story presented in "Small Engine Maintenance Guide", a 28-page, four-color service booklet published by Caterpillar. In the booklet—similar to a child's comic book—a dealer's serviceman shows how good maintenance will add many hours of top performance to engines. The booklet is labelled Form 30246 and copies are available from CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS.

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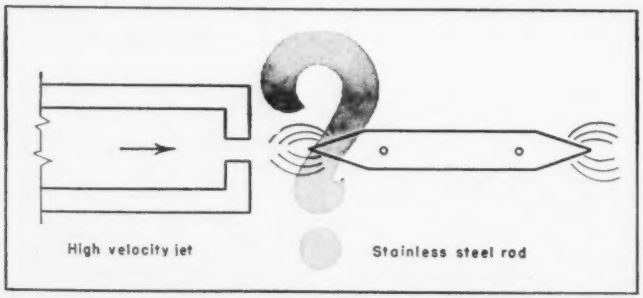


WILL IT KILL?—Can a simple, economical means of producing the effect of ultrasonic vibrations in fluids be developed? And if it is, will its bactericidal effect be practical?

Sound waves and sewage

Can sound waves kill bacteria? Can they coagulate and settle or finely disperse solids in liquids? Are they near having a sanitary engineering application?

John P. Horton, sanitary engineer with National Dairy Research Laboratories at Oakdale, Long Island, gave some of the latest answers to these questions in a talk to the recent meeting of the New York Sewage & Industrial Wastes Association in New York. He described findings of his doctorate research project completed last year at Massachusetts Institute of Technology under a National Health Institute fellowship.

• **Ultrasonics defined**—Horton calls ultrasonic vibrations those sounds pitched higher than the ear can hear. Vibration is the source of all sound, but when its frequency (pitch) gets up above 18,000 cycles per second it can't be heard; it becomes ultrasonic.

But it isn't frequency of the waves that gives them a bactericidal effect; this comes from their intensity or loudness. Getting them beyond the range of hearing is a device making it practical to build up intensity of the vibrations. The high frequency is just a convenience.

Once the waves are beyond audibility their intensity (loudness) can be multiplied to a billion times that of the normally spoken word. It's this intensity that does the damage.

• **Death on bacteria**—Such vibrations directed through fluids cause cavitation, actually tear the fluids apart with their tensile effect. Then with a reversal of stress, the voids opened are slammed shut with a shock wave having pressures on the order of several hundred atmospheres. This is what is responsible for the lethal effect of ultrasound.

During his work at MIT, Horton was asked if the vibrations could destroy water-borne cysts responsible for amoebic dysentery. His finding: Yes, in 40 seconds.

• **Source of vibrations**—If you put a nickel or cobalt bar in a magnetic field of alternating current, it will alternately expand and contract, setting up vibrations. A natural quartz crystal will do the same. Synthetic barium titanate crystals work, too, and can be built up into mosaics for increased power.

At MIT a natural quartz crystal was used on E-coli. Temperature, pH, turbidity and strength (measured by surface tension) of the liquid were varied. Killing time was measured.

• **Variations in effect**—The waves did their best at a temperature near 140 deg F, killing all bacteria in less than 5 minutes. (According to Bergey's Manual of Determinative Bacteriology, that temperature alone would take 20 to 30 minutes to kill the bacteria.) Killing time varied inversely with temperature and in some cases went beyond 60 minutes.

Vibrations were slightly more effective killing bacteria at high pH, but pH is not considered too important a controlling factor by Horton. As turbidity gets up above 70 ppm, killing rate is slowed. The lower the surface tension, the lower the killing rate; vibrations in stronger fluids (high surface tension) have a more devastating effect.

There are "bugs" in this bactericide. There are difficulties making the method less than perfect for application to sewage: (1) Air bubbles develop because of necessary cavitation and reflect the sound, making it difficult to penetrate a fluid. (2) Sewage surface tension is generally less than that of pure water, meaning there's less strength of fluid to wield against bacteria. (3) High turbidity cuts killing effect.

• **Chlorine still is cheaper**—Biggest hitch, of course, is cost. Horton figures that his MIT operation multiplied to kill all bacteria in 1 million gallons of sewage plant effluent would cost more than $15,000, just for power involved in electricallly producing the needed ultrasonic waves. Power for pumping would be extra.

The trick, as he sees it, will be to produce the desired cavitation effect in fluids without the expensive quantities of electricity required by present ultrasonic wave generators.

In Cambridge, Mass., there is an outfit called Ultrasonic Corp. working on a device to do this by simply shooting fluid in a high velocity-jet at an ultrasonically vibrating member as pictured in the sketch.

Coagulation by ultrasonics is in its infancy, according to Horton. He was able to agglomerate suspended Boston blue clay and other silty solids with sound waves. But as soon as he'd turn off the power, back they would go into suspension. In a quick one-shot try at some raw sewage, he coagulated some stringy masses that floated.

Dudley Thompson of Virginia Polytechnic Institute is reported to have had some success in coagulating phosphate tailings for TVA, but he hadn't worked with sewage at last report. Collection of flyash in flue gases is another application of the agglomeration possibility. Low intensity ultrasonic waves do the best coagulation job, says Horton.

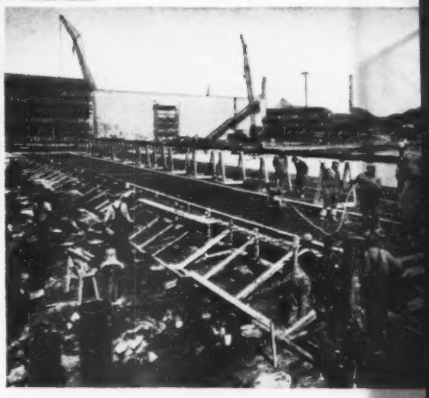
Dispersal of solids in fluids is another potential application in stimulating growth of helpful bacteria and in processes outside sanitary engineering. Horton was able to disperse mercury so effectively in water that it remained in suspension for about a week.

Ultrasonics, it may safely be said, has not yet arrived. But that doesn't mean it won't.

ORE DOCK

GREAT LAKES STEEL CORPORATION

ZUG ISLAND MICHIGAN



FIFTY Raymond CONTRACTS

FOR GREAT LAKES STEEL CORPORATION

DIVISION OF NATIONAL STEEL CORPORATION

The construction of the Ore Dock was the 50th contract between Great Lakes Steel Corporation and Raymond Concrete Pile Company. The work involved the placing of approximately 36,000 cu. yds. of concrete on 7100 long pipe step-taper piles.

WE ARE EXTREMELY PROUD OF THIS RECORD OF SERVICE TO THE GREAT LAKES STEEL CORPORATION

BRANCH OFFICES in the principal cities of the United States and Central and South America.

Raymond CONCRETE PILE CO.

140 CEDAR STREET • NEW YORK 6, N. Y.

SCOPE OF RAYMOND'S ACTIVITIES
Soil investigations, pile and caisson foundations, underpinning, harbor and river improvements and the lining of steel and concrete pipelines by the Centriline process.

Saves 25 weeks of form erection time with help of TIMKEN® bearings

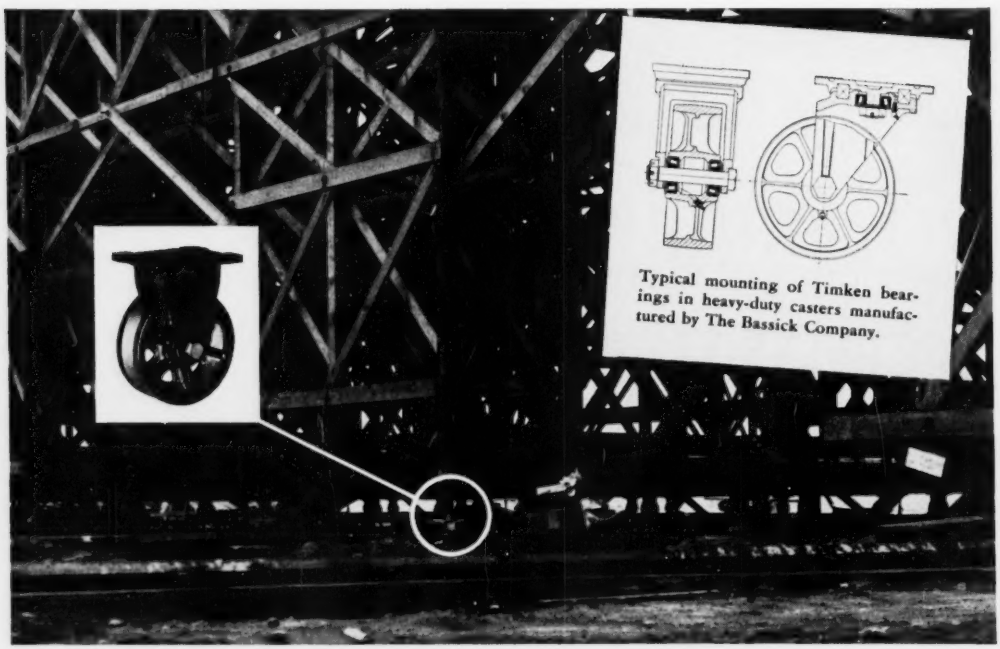
USE of the traveling arch centering, below, saved an estimated 25 weeks form erection time and substantial amounts of labor and materials in construction of the new Denver Municipal Stadium. Serving as multiple forming for pouring six sections of the stadium's 5,400 ton concrete roof, the traveling arch centering was mounted on 100 five-ton Bassick V-groove wheels.

Bassick wheels were used to carry the traveling arch centering because they minimize friction even when carrying tremendous loads. One way The Bassick Company builds this friction-free performance and large load-carrying capacity into its wheels is by mounting them on Timken® tapered roller bearings.

Timken bearings have extra load-carrying capacity because of line contact between rollers and races. They operate freely, frictionlessly because of their true rolling motion and the smooth surface finish of rollers and races. Wheels turn easily, don't stick or slide.

Timken bearings are engineered for the job, precision manufactured and made of Timken fine alloy steel. They give you more advantages than any other bearing. Make sure you have Timken bearings in the construction equipment you buy or build. Look for the trade-mark "Timken" on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.



Typical mounting of Timken bearings in heavy-duty casters manufactured by The Bassick Company.

DESIGN LEADERSHIP

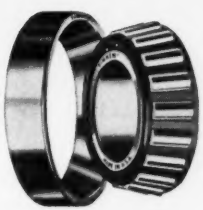
The first Timken tapered roller bearing was produced in 1898. Since then the one-piece multiple perforated cage, wide area contact between roller ends and ribs, and every other important tapered roller bearing improvement have been introduced by The Timken Roller Bearing Company.

The Timken Company leads in: 1. advanced design; 2. precision manufacture; 3. rigid quality control; 4. special analysis steels.

TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

TAPERED ROLLER BEARINGS



NOT JUST A BALL — NOT JUST A ROLLER — THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL AND THRUST — LOADS OR ANY COMBINATION